Advisory Committee on Watershed-based Source Protection Planning

FINAL REPORT

PROTECTING ONTARIO'S DRINKING WATER: TOWARD A WATERSHED-BASED SOURCE PROTECTION PLANNING FRAMEWORK

April 2003

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EXECUTIVE SUMMARY

Ontarians have made it clear that clean and safe drinking water is one of the most significant public priorities facing our province today.

As Justice O'Connor stated in his *Part Two Report of the Walkerton Inquiry*, protecting and enhancing natural systems is one of the most effective and efficient means of protecting the safety of Ontario's drinking water. In his *Part Two Report*, Justice O'Connor made 22 recommendations related to source protection planning, which have served as the starting point for developing the made-in-Ontario watershed-based source protection planning framework set out in this report.

The Advisory Committee on Watershed-based Source Protection Planning was established by the Minister of the Environment (MOE) on November 15, 2002. Advisory Committee members were asked to provide advice to the government on a framework for watershed-based source protection planning. Together, this report and its recommendations fulfil that mandate.

OVERVIEW OF THE REPORT STRUCTURE

This report is organized into six sections:

- 1) Introduction – provides an overview of drinking water source protection planning and key concepts.
- 2) Framework Fundamentals – contains the underlying principles needed to support source protection planning.
- 3) The Planning Process – describes a 'generic' process for the development of watershed-based source protection plans.
- 4) Risk Management – identifies key considerations in managing risks and threats to drinking water sources.
- 5) Information Management – outlines an information management framework to support source protection planning.
- 6) Conclusion – presents the Advisory Committee's final conclusions on its source protection planning framework.

Each section is briefly discussed below, along with the full text of the recommendations embedded in each section.

1) INTRODUCTION

Planning to protect drinking water sources must happen on a watershed-basis because it allows an entire water resource system to be considered as a whole – water does not stop at county lines or municipal boundaries.

Protecting Ontario's drinking water at its source is the first line of defence in what experts refer to as the 'multi-barrier approach' to ensuring the safety of drinking water. Each barrier in the system works together to prevent or reduce the risk of contaminants reaching your tap.

Source protection is recognized as playing a critical role in drinking water safety as the first barrier in this system. The primary objective of source protection, like the other barriers, is the protection of human health.

> **RECOMMENDATION 1:** The government require the watershed-based source protection framework described in the Advisory Committee's report and recommendations to be used in all watersheds in Ontario.

2) FRAMEWORK FUNDAMENTALS

The framework for source protection planning starts with key principles that, when applied consistently, will help ensure a consistent approach to the development and implementation of source protection plans across Ontario. These principles include: sustainability, comprehensiveness, shared responsibility and stewardship, public participation and transparency, cost effectiveness and fairness and continuous improvement.

To reinforce its importance, the Advisory Committee recommends that the framework be enshrined in new watershed-based source protection legislation. This legislation must make very clear when source protection legislation takes precedence over other pieces of legislation: namely, when human health is a concern.

In addition, new powers are needed by municipalities to ensure they can carry out their key role in planning and in implementing source protection planning. Additional responsibilities will be assumed by other important players in source protection planning, such as conservation authorities; as a result, their mandates and resources will also need to be enhanced.

The involvement of First Nations in the planning and implementation of source protection is critical. Their existing capacity must be utilized and supplemented if the goal of safe and reliable drinking water is to be met throughout Ontario, both on and off First Nations' land.

Recognizing that it takes time to develop and implement source protection plans across Ontario, the Advisory Committee identifies ways to manage the risks to drinking water sources that need to be addressed today, before we have reached the objective of province-wide source protection.

The Advisory Committee concludes that the primary responsibility for funding the initial round of source protection plans lies with the provincial government. This will give more time to understand the costs involved before a formal funding strategy is finalized.

Responsibility and Accountability

RECOMMENDATION 2: Consistent with Justice O'Connor, the provincial government, specifically, the Ministry of the Environment, has the ultimate accountability for ensuring source water protection, notwithstanding the shared responsibility of all governments and stakeholders to contribute to our collective goal of ensuring a sustainable supply of safe clean drinking water.

Goal of Source Protection Plans

RECOMMENDATION 3: The goal of watershed-based source protection planning in Ontario is to protect human health through the protection of current and future sources of drinking water, including inland lakes, rivers and groundwater, from potential contamination and depletion through locally-developed watershed-based source protection plans.

Scope of the Framework Regarding the Great Lakes

RECOMMENDATION 4: While the source protection planning framework focuses on inland waters, all communities and water users whose source of water is the Great Lakes share in the responsibility for the protection and enhancement of the waters of the Great Lakes, as well as inland water sources. Furthermore, the Ministry of the Environment should require any entity that discharges waste water, rural run-off or storm water to the Great Lakes to manage or improve the quality of its discharges to a standard that meets the objectives of source water protection.

RECOMMENDATION 5: As the province negotiates with its Great Lakes partners, it should recognize the benefits of source protection and work to have its principles incorporated into future agreements.

Principles Guiding Source Protection Planning

RECOMMENDATION 6: Decision-making that could have potential impacts on human health and affect water quality or quantity be guided by the following principles:

- **Sustainability:** Water is essential for our health and ecosystem viability and must be valued as finite. Source protection plans should consider historical, existing, new and future land uses when considering how to ensure clean sources of drinking water now and in the future.

- **Comprehensiveness:** All watershed-based source protection plans must take a precautionary approach that uses the best available science and is subject to continuous improvement as our knowledge increases. The plan must be defensible and have the flexibility to accommodate Ontario's diverse watersheds.
- **Shared Responsibility and Stewardship:** While the Ministry of the Environment has ultimate accountability for ensuring source water protection, responsibility for specific outcomes is shared among all water managers, users and land owners.
- **Public Participation and Transparency:** There must be open discussion and communication of the source protection planning process and its results, from development to implementation. Stakeholders and the public will have opportunities for meaningful input.
- **Cost Effectiveness and Fairness:** The costs and impacts on individuals, land owners, businesses, industries and governments must be clear, fair and economically sustainable. Source protection planning must access all information that is practical and reasonable and use technologies and risk management practices to maximize the protection of public health.
- **Continuous Improvement:** Source protection planning is built on a commitment to continuous improvement, including peer review, that requires ongoing support of all stakeholders to ensure successful implementation based on assessment, monitoring, evaluation and reporting, followed by appropriate modifications to the plan.

Legislative Basis for Source Protection Planning

RECOMMENDATION 7: A stand-alone piece of legislation for source water protection be developed that incorporates provisions related to source protection from other legislation so that the legislation will be as clear and comprehensive as possible.

RECOMMENDATION 8: Where risk to human health is the concern, source protection legislation should supersede other legislative provisions and other considerations, consistent with the hierarchy set out by Justice O'Connor (refer to Appendix A: Justice O'Connor Recommendations 4 and 5). This also requires that provincial decisions affecting water quality and quantity, such as permits to take water, the Oak Ridges Moraine Conservation Plan and certificates of approval, etc., to be consistent with source protection legislation in the same way.

RECOMMENDATION 9: Other legislation, such as the *Environmental Protection Act, Municipal Act, Planning Act, Nutrient Management Act, Drainage Act, the Brownfields Statute Law Amendment Act* and the

Mining Act, etc., be amended where necessary to be consistent with the source protection legislation.

RECOMMENDATION 10: Source protection legislation and regulations should include, among other requirements:

- a schedule for completion of initial plans that reflects a phased approach that recognizes the capacity of participants and the existing level of risk (watersheds at a higher risk should be required to develop and implement plans more quickly; watersheds with high quality water should be protected from potential contamination; the province should consult with stakeholders when establishing the schedule);
- all planning areas must initiate the planning process within two years of the effective date of the legislation in accordance with the legislated schedule and each plan, once started, should generally be completed within three years (source protection plans must be in place across Ontario by the end of the fifth year);
- the power for the Minister of the Environment to identify the planning areas to which a specific source protection plan is to apply and to designate the organization with lead responsibility for co-ordinating plan development for the planning area;
- the roles and responsibilities of the key parties involved in source protection planning (see also 3) THE PLANNING PROCESS).
- the minimum content of source protection plans (refer also to Advisory Committee Recommendation 31);
- the process requirements for the source protection plan development, including local consultation, as well as clear public reporting requirements (these requirements would also include those related to the approval process); and
- grounds for appeal related to the content or process used in developing source water protection plans, the entity or body which is responsible for hearing these appeals, associated timelines and other procedures and requirements (refer also to Advisory Committee Recommendations 39 and 40).

New Powers for Municipalities

RECOMMENDATION 11: The province work with municipalities and other stakeholders to identify the appropriate types and scope of new municipal powers that should be made available for the purposes of source water protection, including dealing with funding issues. Then, the province should take steps to ensure that the agreed-upon list of new municipal powers is provided to municipalities so that they may use them to better protect source water and implement watershed-based source protection plans (refer also to Advisory Committee Recommendations 33 and 34).

New Responsibilities for Conservation Authorities

RECOMMENDATION 12: Conservation authorities be the organization given responsibility for co-ordinating the development of watershed-based source protection plans wherever possible.

RECOMMENDATION 13: The resourcing of conservation authorities recognize their new role in source protection planning and provide for new sources of funding in specific instances related to source protection planning (refer also to Advisory Committee Recommendations 33 and 34).

RECOMMENDATION 14: The province requires all municipalities and local services boards to participate in source protection planning.

First Nations

RECOMMENDATION 15: Recognizing current agreements and relationships with conservation authorities, provincial ministries and other jurisdictions, First Nations (and their technical designates) and the Ministry of the Environment establish a working relationship with respect to source protection planning as soon as possible.

RECOMMENDATION 16: The province pursue a strategy with the federal government and First Nations that would support the ability of First Nations (and their technical designates) to be full participants in source water protection planning and implementation. This would include ensuring their involvement in the development of the plan, including participation on the source protection planning committee and in the consultation process, and in the implementation of watershed-based source protection planning through agreements.

Interim Risk Management

RECOMMENDATION 17: The province, municipalities and conservation authorities use their available powers to manage potential threats to human heath and protect sources of drinking water by taking action with respect to high-risk activities and land uses until source protection plans are approved and implemented.

RECOMMENDATION 18: Conservation Ontario and the province provide a model source protection plan, based on existing source protection plans, that will be used as a guide in the interim by those without source protection plans. This model would establish a common platform that would be informed by details particular to each area.

Financing Initial Source Plans

RECOMMENDATION 19: The province substantially funds development of all initial watershed-based source protection plans.

RECOMMENDATION 20: Contributions from sources in addition to the provincial government, consistent with Justice O'Connor's report, be negotiated to support ongoing source protection planning (refer also to Advisory Committee Recommendations 33 and 34).

3) THE PLANNING PROCESS

This section describes a generic process, as recommended by the Advisory Committee, for the development of a watershed-based source protection plan, outlining the roles and responsibilities of participants.

The first requirement is the creation of a Source Protection Planning Committee (SPPC) in each planning area. Each SPPC will steer the planning process, ensuring it meets the requirements of the provincial planning framework and the priorities of the planning area. The SPPC will report to the board of directors of a conservation authority (or the Ministry of the Environment where there is no conservation authority).

Appropriate representation and involvement of affected parties is critical to obtaining 'buy-in' from the community. As a result, there will be minimum requirements for all SPPCs across the province related to membership: one-third municipal representatives; one-third provincial, First Nations and federal representatives; one third local public health and other stakeholders. Variations to deal with Northern Ontario's unique characteristics will be made as appropriate.

One key responsibility of each SPPC is to forge consensus on what sufficient municipal support will mean for the source protection plan in the area. That is, it must identify how sufficient municipal support is to be defined within the planning area and how it will be ascertained before the plan is sent for provincial approval. Another very important responsibility of the SPPC is to establish and co-ordinate a transparent local consultation process to ensure broad consultation among affected parties in the local planning area.

All source protection plans will adhere to a consistent provincial standard but the content requirements are flexible enough to accommodate local conditions that will, of course, vary from watershed to watershed. The Ministry of the Environment will provide final approval of all source protection plans.

Given the ongoing nature of source protection planning and implementation, the Advisory Committee provides some high level direction on determining how to fund source protection on a permanent basis. Like Justice O'Connor, the Advisory Committee strongly believes that a permanent funding framework needs to draw on a number of funding sources and that those who impact sources of drinking water and those who benefit from it should be among those making financial contributions.

Because of the importance of source protection to Ontarians present and future, the Advisory Committee believes that the government should engage in broad public consultation on the recommendations made in the Advisory Committee's report as soon as possible.

Planning Areas

RECOMMENDATION 21: For the purposes of developing source protection plans, there should be approximately 16 planning areas in southern Ontario and approximately 8 in Northern Ontario. This recognizes that the grouping of watersheds into planning areas may enable more effective and efficient sharing of resources.

Source Protection Planning Committee (SPPC)

RECOMMENDATION 22: Consistent with Justice O'Connor, the plan development process is co-ordinated by a conservation authority, or the Ministry of the Environment (or designate) in areas where there is no conservation authority. Where a conservation authority is in an area adjacent to large areas of Crown land, the conservation authority should play a co-ordinating role alongside the Ministry of the Environment.

RECOMMENDATION 23: The SPPC will act as an advisory committee to the board of directors of the conservation authority. It is the board(s) of directors that submits the recommended draft plan to the Ministry of the Environment for approval. A parallel process will be established for areas that do not have a conservation authority.

RECOMMENDATION 24: The chair of the SPPC will be appointed by the Minister based on a recommendation from the board(s) of directors of the conservation authorities. The chair may be a full-time position in some areas.

RECOMMENDATION 25: Membership on the SPPC be distributed as follows: one-third municipal representatives; one-third provincial, First Nations and federal representatives, and; one-third local public health and other stakeholders. At a maximum, SPPCs will be made up of 18 individuals plus the chair. Note, that each stakeholder or group of stakeholders would select its own representative(s) to the SPPC. In addition, the SPPC may establish working groups as necessary, providing another opportunity for direct involvement of others in the plan development process.

RECOMMENDATION 26: SPPCs must define in their terms of reference what constitutes sufficient municipal support for the draft source protection plan to be recommended for approval to the Ministry of the Environment. This must be agreed to by the board of directors of the conservation authority (or authorities) and forwarded for approval by the MOE as one of the first steps in the plan development process.

RECOMMENDATION 27: Each planning area will, as part of their responsibilities, constitute an expert panel made up of individuals that would, at key milestones, assess the appropriateness and validity of the approach, science and operational / management practices, and its advice will be used to inform the planning process.

Technical Expertise

RECOMMENDATION 28: Planning areas must have access to the necessary technical expertise to support the development, implementation and ongoing enhancement of source protection.

Planning Area Consultation Process

RECOMMENDATION 29: The minimum requirements for a transparent local consultation process in a planning area will include having:

- meetings of the Source Protection Planning Committee that are advertised and open to public attendance;
- draft plans and proposals published widely;
- adequate time and information to ensure a range of views are fully canvassed and considered;
- invitations for public comment in writing;
- documentation of responses to public input, as appropriate; and
- involvement of other affected local parties, including municipalities, local services boards, elected officials, land users, water system operators, First Nations, off-reserve Aboriginal communities, local public health officials, and the public, in its important role of drinking water consumer.

RECOMMENDATION 30: All Source Protection Planning Committees define in their terms of reference a plan for local consultation that meets minimum requirements and this must be agreed to by the board(s) of directors of the conservation authority early in the planning process.

Content of the Initial Source Protection Plan

RECOMMENDATION 31: The components to be included in a source protection plan integrating Justice O'Connor's list of "key ingredients" are as follows:

- objectives and targets of the Source Protection Plan.
- technical information including:
  - a water budget, including future water needs;
  - a fate of contaminants model, including assessment of future pollutant loadings and cumulative impacts;
  - maps, based on provincially prescribed definitions and methodology, that identify areas of high, medium and low vulnerability areas and sensitive water resources (refer to 4) Risk Management section);
  - a baseline map to establish the state of the watershed at the outset of the planning process and an overlay map of existing and potential land uses;
  - identification and delineation of natural features such as various types of wetlands, woodlands and riparian zones that contribute to the protection of drinking water sources;
  - identification of areas where a significant direct threat exists to the safety of the drinking water supply;
  - maximum contaminant loads to meet water quality objectives;
  - inventory of major point and non-point sources of contaminants and high-risk land uses; and
  - maps of all significant water takings and areas experiencing stress due to water takings.
- identification of where source protection issues exist, such as:
  - where a significant direct threat exists to the safety of the drinking water source;
  - potential water allocation problems;
  - need for special operational limits to water taking;
  - areas where the plan might need to influence or govern municipal land use and zoning;
  - areas where farm water protection plans are needed;
  - areas where biosolids and septage spreading need special consideration;
  - contaminated site issues that need priority action;
  - priority areas for identifying and properly decommissioning unused or abandoned wells;
  - priority areas for ending the misuse of abandoned pits and quarries or for their rehabilitation; and

  - identification of knowledge gaps and research needs for the watershed.
- an implementation plan* to manage the identified source protection issues, including roles and responsibilities, accountability, process, schedule and outputs.
- a monitoring and reporting plan*, including roles and responsibilities, accountability, process, schedule and outputs.
- a description of how the plan will be reviewed and updated, including roles and responsibilities, accountability, process, schedule and outputs.
- a description of outstanding or unresolved issues and how they will be dealt with* (these may be addressed through additional data collection, more detailed study and approved analytical tools).

These may be supplemented by more detailed technical or other support guidelines to be developed by the province.

Approval Process for Source Protection Plan

RECOMMENDATION 32: The province define in legislation the criteria and process through which it will review and approve source protection plans based on the recommendations of the Advisory Committee and the results of the expert working group (refer also to Advisory Committee Recommendation 31 regarding the content of source protection plans).

Toward Implementation

RECOMMENDATION 33: Consultation on implementation and ongoing planning, including how to pay for them, be undertaken with different stakeholder groups immediately following receipt of this source protection planning framework. This consultation should start from the list of potential roles and responsibilities presented by the Advisory Committee in its report.

RECOMMENDATION 34: The model for the sharing of costs to align funding mechanisms with the appropriate responsible body should be negotiated with stakeholders while the initial source protection plans are being developed. Furthermore, all those in a planning area, particularly those who impact sources of drinking water and those who benefit from it, should contribute, to some degree, to the costs of source protection.

RECOMMENDATION 35: Incentive programs and payments for environmental benefits should be considered, especially in sensitive areas and well capture zones, as one way to encourage implementation of source protection measures and provide for long-term sustainability.

Review and Updating of Source Protection Plans

RECOMMENDATION 36: Groups involved in initial plan development and any newly identified participants should be convened periodically to review and revise the plan as necessary.

RECOMMENDATION 37: Proposed roles for those responsible for keeping plans up-to-date are as follows:

- Conservation Authorities will be responsible for:
    - keeping the source protection plan up-to-date and for keeping other partners and interest groups informed of any changes;
    - revising the local consultation process and work plan, if required, to fill in the information gaps in the source protection plan on an ongoing basis; and
    - issuing implementation status reports.
- Municipalities will be responsible for:
    - participating in source protection planning as a member of the conservation authority;
    - identifying new issues related to source protection and bringing them to the attention of the conservation authority; and
    - issuing implementation status reports.
- First Nations will be responsible for:
    - working with the conservation authority on source protection planning;
    - identifying new issues related to source protection and bringing them to the attention of the conservation authority; and
    - issuing implementation status reports.
- The Province will be responsible for:
    - defining the updating process, including public consultation, by working with affected groups (e.g., to establish the formal source protection planning cycle)
    - mandating when a new or updated plan is required;
    - reviewing and updating standards; and
    - issuing implementation status reports.

Reporting Roles

RECOMMENDATION 38: Consistent with Justice O'Connor, the government must report publicly on the status and progress of source water protection. Public reporting must be required from the Ministry of the Environment and each lead organization on watershed-based source protection plans and planning activities.

Appeals

RECOMMENDATION 39: Consistent with Justice O'Connor, appeals should provide for limited rights of appeal to challenge source protection plans and decisions of provincial and municipal governments that are inconsistent with those plans. These appeals may be heard by the Environmental Review Tribunal (ERT) or another appropriately designated appeals body.

RECOMMENDATION 40: Amendments to existing appeal processes (e.g., under the *Planning Act*, the *Ontario Water Resources Act*) be developed, where necessary, to provide appropriate grounds of appeal related to source protection planning. The details of appeal processes related to source protection must be developed as part of implementation planning.

Public Consultation and Education

RECOMMENDATION 41: The province must undertake broader public consultation on the recommendations made in the Advisory Committee's report to ensure that all stakeholders and Ontarians have an opportunity to contribute to the development of the source protection planning framework prior to legislation being introduced

RECOMMENDATION 42: The province, conservation authorities, municipalities and other stakeholders ensure that public education and dissemination of information is undertaken to ensure that Ontarians fully embrace the importance of protecting our drinking water sources.

4) RISK MANAGEMENT

The Advisory Committee believes that Ontario should promote the development of state-of-the-art risk management, by committing to continuous improvement and using the best available science to evaluate the potential impact of specific threats to drinking water sources.

Threats to drinking water sources exist in virtually all watersheds. The manner in which such threats are managed will be defined on a site-specific basis according to the level of risk presented by the threat to the water source. The Advisory Committee is aware that inventories of threats are underway in many watersheds in Ontario as part of provincially-funded groundwater studies. These activities will contribute valuable information to the source protection planning process.

Since all potential threats do not pose the same level of risk to all drinking-water sources, actions taken will vary across watersheds. The extent of the threat will also vary due to the physical characteristics of the land and the uses to which it has been put. In all cases, the Advisory

Committee recommends that a more prescriptive approach to managing threats be taken in the most vulnerable areas.

The Advisory Committee limits itself to identifying the broad issues which must be considered. The report considers a number of risk management strategies that apply to both ground and surface waters and examines:

1. New uses in the most vulnerable areas
2. New uses in less vulnerable areas
3. Existing uses in the most vulnerable areas
4. Existing uses in less vulnerable areas
5. Water quantity
6. Wells (domestic, municipal, communal, etc.)
7. Septic systems and underground fuel storage tanks
8. Landscape restoration

Because so many of the issues related to threat assessment and related risk management strategies are highly technical, the Advisory Committee recommends that the province immediately establish a team of experts to develop an Ontario-based threat assessment process within six months of the receipt of this report.

Risk Management Strategies

RECOMMENDATION 43: The province establish the definitions of threats and their relative risks to water sources that will be inventoried in all watersheds. To this end, the province should immediately establish a working group of experts to agree on an Ontario-based threat assessment process within six months of the receipt of the Advisory Committee's report and present its finding to the province for approval. This working group must also develop the initial definition of "vulnerable area" and "sensitive water resource" to be used in all planning areas.

RECOMMENDATION 44: Any working definition of "vulnerable area" or "sensitive water resource" used in the initial planning stages and legislation be reviewed on an ongoing basis to make it appropriate for source water protection and consistent with definitions in other pieces of legislation and programs.

RECOMMENDATION 45: The approach to threat assessment, risk management and sustainable supply for both ground and surface water sources in Ontario be consistent with the considerations identified in the Advisory Committee's report in the sub-sections: **Threat Assessment** and **Risk Management Strategies (section 4) Risk Management)**.

RECOMMENDATION 46: The risk analysis process must be premised on the best available science. While it is recognized that more qualitative classifications of threat, vulnerability and sensitivity will be necessary initially, the risk analysis process must evolve toward more accurate quantitative methodologies and technologies as our knowledge base grows and improves over time with advances in research.

Additional Standards for Surface Water

RECOMMENDATION 47: All Ontario surface water bodies should continue to be required to meet the Provincial Water Quality Objectives (PWQO) since meeting them consistently would be an important step towards meeting the goal of source protection planning. These standards should be not used as a substitute for more detailed and site-specific source protection strategies, nor should they be interpreted as allowing high quality water to be degraded to meet a minimum standard.

RECOMMENDATION 48: The PWQOs should be peer reviewed so that they meet the highest international standards. The PWQOs should be reviewed specifically from the perspective of source water protection and new PWQOs should be added as necessary.

5) INFORMATION MANAGEMENT

Source protection planning is a complex activity, requiring significant data inputs and data analysis capability. Successful implementation of source protection will depend on timely access to the best available data, information and models by provincial ministries and the planning participants. Of particular concern to the Advisory Committee is the lack of information related to First Nations' water resources.

In this section of the report, the Advisory Committee looks at the roles, requirements and needs for monitoring and reporting, and at the recommended information management framework to support source protection plans.

While there is a need to enhance Ontario's capacity to gather, manage and use information in support of source protection planning, the effective use of existing systems must be maximized and any overlap or inefficiencies minimized before any new investments in expensive information systems are made.

Source protection planning will require the province, municipalities and conservation authorities to manage information on a co-operative basis and to ensure open access to consistent and reliable information. The province is the lead data management organization, recognizing that other stakeholders will play an important role in the collection of information and maintenance of local monitoring programs.

Only by having detailed and comparable data available over time will Ontario be able to ascertain the impact of source protection planning on human health, water quality and quantity, and on other environmental objectives.

The scientific basis on which source protection planning is based is continually evolving. Therefore, the Advisory Committee wants to emphasize that research will play an important role in its development. In this respect, the Committee assumes that Justice O'Connor's recommendations on drinking water research in his *Part Two Report of the Walkerton Inquiry* are understood to include source protection. Specifically, the Advisory Committee asks the government to ensure that a sustainable level of funding for ongoing research into the sciences related to source water protection, most particularly those related to human health, is provided.

Monitoring and Information Management

RECOMMENDATION 49: The province undertake an assessment of the capacity of current and planned monitoring networks to support the needs of source protection planning. Any additional investment in information systems must clearly enhance current capacity, rather than duplicate it.

Roles and Responsibilities Related to Information

RECOMMENDATION 50: The province is the lead data management organization, recognizing that other stakeholders will play an important role in the collection of information and maintenance of local monitoring programs.

RECOMMENDATION 51: The following activities, related to information, need to be carried out or co-ordinated at the provincial level:

- centralized compilation, collection and improvement of data sets. (this includes the work being done by Land Information Ontario to develop mapping and georeferencing standards that will ensure source protection plans fit together);
- provision of provincial data to SPPCs to support the development of initial source protection plans;
- development of data standards with the involvement of stakeholders, including a mechanism to ensure that all participants are working with the same or compatible data;
- a central repository and conduit for provincial data access and sharing with planning participants, to complement the sharing of data and information amongst planning areas, conservation authorities and municipalities;
- provision of advice, training and expertise to planning participants;
- development of, and input into, the selection of specific modelling tools; and

- aggregation of source protection plans and reporting at a provincial level that ensures consistency of mapping.

RECOMMENDATION 52: Conservation authorities and municipalities would be responsible for managing and collecting information relevant to source protection that is not already being collected by the province or another body. Their roles would include:

- co-ordination of the local compilation, collection and improvement of data sets;
- sharing data and information with other planning areas, conservation authorities and municipalities;
- integration of local data with provincial data sets;
- aggregation and reporting of data and information into a central repository;
- analysis of the integrated information sets to create source protection plan products;
- development of appropriate specific models for watershed planning purposes; and
- provision of local information support through the development of the source protection plan.

RECOMMENDATION 53: To the extent possible, data should be as available to all those involved, including the dissemination of data and information to the public (e.g., non-proprietary information).

Outcome Measures and Evaluation

RECOMMENDATION 54: The province working with stakeholders identify the lead indicators by which progress toward the achievement of desired outcomes can be assessed and measured at the provincial and local levels. These indicators should be developed with six months of the beginning of the planning process.

Research Related to Source Water Protection

RECOMMENDATION 55: The government ensure that a sustainable level of funding for ongoing research into the sciences that support source protection and, in particular, those disciplines that increase our understanding of the impact on human health. Furthermore, that the government ensure that Justice O'Connor's recommendations on drinking-water research and those of the Advisory Committee are implemented in an integrated manner, ensuring timely dissemination of relevant research findings to those involved at all levels, from academia to those in charge of day-to-day activities.

6) CONCLUSION

Water is fundamental to many aspects of life in Ontario – our health, our economy, our social and community life, our recreation and our natural heritage.

The Advisory Committee Report contains 55 recommendations on a provincial framework for watershed-based source protection planning. The Committee's recommendations focus primarily on the process of developing and approving a source protection plan. The report also includes high-level recommendations regarding next steps and source protection plan implementation, and highlights the need for additional consultation to develop technical and implementation details.

Consistent with its mandate, the Advisory Committee provided advice on 21 of 22 recommendations related to source protection in Justice O'Connor's Part Two Report of the Walkerton Inquiry.

The Advisory Committee believes that its source protection planning framework can be an effective guide for making decisions on historical, existing and new land and water uses in ways that protect human health. However, it also recognizes that in some cases its recommendations will need to be fleshed out in more detail as the planning process moves forward.

Protection of drinking water at its source is just the first barrier in a multi-barrier system that helps to ensure a long-term supply of safe, clean drinking water.

Ontario needs to protect its drinking water sources. The Advisory Committee believes its source protection planning framework is strong enough to meet the challenges ahead. It is forward-thinking. It protects human health while taking into account ecological and economic interests.

The important thing is to begin source protection planning *now*. The Advisory Committee encourages the province to move forward on the recommendations contained in this report as soon as possible.

ACKNOWLEDGEMENTS

The Advisory Committee was assisted in its work by a team of technical experts co-chaired by the Ministry of the Environment and the Ministry of Natural Resources. Other members of the team included representatives of Conservation Ontario, the Association of Municipalities of Ontario, the Ontario Federation of Agriculture and additional ministries, including the Ministries of Agriculture and Food, Municipal Affairs and Housing, Smart Growth Secretariat and SuperBuild.

Each member of the Technical Working Group possessed broad experience and significant expertise in a major area related to watershed-based source protection planning. Together, they served as a valuable resource for the Advisory Committee. They worked directly with the Advisory Committee, drafting materials and undertaking research to support the Committee's work.

The Advisory Committee would like to thank all those involved in the Technical Working Group. Their combined efforts contributed greatly to the operations of the Advisory Committee as it prepared this report.

The Advisory Committee would also like to thank Robb Ogilvie for his facilitation skills, which enabled the Advisory Committee to fulfil its mandate in a timely fashion.

MESSAGE FROM ADVISORY COMMITTEE MEMBERS

The members of the Advisory Committee were appointed by the Minister of the Environment to provide advice on the development of a watershed-based source protection framework consistent with Justice O'Connor's recommendations in the *Part Two Report of the Walkerton Inquiry*.

Each member of the Advisory Committee brought significant insight and an informed perspective to source water protection issues and contributed his or her knowledge as an expert, rather than as spokesperson for a particular sector or organization. The open dialogue that occurred throughout the Advisory Committee's meetings confirmed that this was a productive approach to discussing the issues and a practical way to reach consensus recommendations.

As the Advisory Committee's report and recommendations finds a larger audience, additional issues may arise as various organizations and sectors, as well as the public, offer additional input and comment. The participation of individuals on this Advisory Committee does not bind their home organizations to the statements or recommendations contained in this report.

1) INTRODUCTION

Context

Ontarians have made it clear that clean and safe drinking water is one of the most significant public priorities in our province today. The extensive public hearings that occurred as part of the Walkerton Inquiry confirmed that Ontarians' confidence in their drinking water requires that the systems that deliver, govern and protect our water—from source to tap—meet the highest standards. Protecting human health is paramount.

In addition, as Justice O'Connor made very clear, a provincial legislated framework for watershed-based source protection planning is required to put in place measures that will help ensure the safety of Ontario's drinking water and protect public health. Of the 93 recommendations in his *Part Two Report of the Walkerton Inquiry*, Justice O'Connor made 22 recommendations related to source protection planning (a full listing of Justice O'Connor's source protection planning recommendations is provided in Appendix A). His recommendations are the starting point for the development of a draft watershed-based source protection planning framework that will apply province-wide.

Soon, this planning activity will become a permanent part of Ontario's strategy for protecting its drinking water. While the framework proposed in this report speaks mainly to the initial planning exercise, it recognizes that source protection will be an *ongoing* and *evolving* undertaking, informed by experience, based on better science and assisted by new technologies. The protection of human health deserves no less.

Advisory Committee Mandate

The Advisory Committee on Watershed-based Source Protection Planning was established by the Minister of the Environment on November 15, 2002. Its terms of reference directed the members to provide advice to the government on a framework for watershed-based source protection planning, consistent with Justice O'Connor's 22 recommendations on source protection planning. The recommendations contained in this report fulfil this mandate.

The 18 members of the Advisory Committee represented a wide range of interests and backgrounds related to watershed-based source protection planning (see Appendix B for a list of Advisory Committee members). Bill Calvert, who served as Chief Administrative Officer for the District Municipality of Muskoka for two decades, chaired the Advisory Committee.

The Advisory Committee met over four months to build consensus among its participants on the appropriate framework for the development of source protection plans in Ontario. The Advisory Committee believes that its recommendations, taken together, provide strong direction to the government, awarding source protection a status commensurate with its ability to help safeguard human health.

While focused primarily on planning, the report also deals with certain implementation issues. The Advisory Committee recognizes that significant additional work is needed to develop the details of the source protection framework, and to produce and then execute the source protection plans. The Advisory Committee emphasizes that detailed implementation planning, involving the government and stakeholders, must be one of the next steps in this overall process.

What is Watershed-Based Source Protection Planning?

A watershed consists of all the lands that drain into a particular body of water, which may be large (e.g., Grand River) or small (e.g., Petticoat Creek). Watersheds are considered to be the most ecologically practical unit for managing water since impacts are felt at the watershed level, rather than at the level of political boundaries, such as municipalities.

Watershed-based source protection acknowledges that the quality and quantity of ground and surface water are influenced by the ecological integrity of the watershed. By maintaining, improving or restoring the health, diversity and function of key natural features that perform a hydrologic function (e.g., wetlands, forested lands and riparian corridors), water resources within a watershed can be protected or enhanced. The Advisory Committee agrees with Justice O'Connor that protecting and enhancing natural systems is one of the most effective and efficient means of protecting the safety of our drinking water.

Planning for watershed-based source protection identifies areas where threats to drinking water sources exist, and then creates strategies for operational controls and land use designations that are appropriate for these areas. Operating at the watershed level allows for a whole water resource system to be considered when threats are being assessed and decisions made.

Though watershed-based source protection planning is a broad-based activity, it actually forms just one part of an even larger concept—watershed management. Watershed management plans usually take a comprehensive ecosystem approach to water, dealing with all water-related natural features, terrestrial resources, fisheries, water linkages and green space planning. While the Advisory Committee restricts itself to the topic of protecting drinking water sources at the watershed level, it also supports Justice O'Connor's expressed desire that Ontario commit to broader watershed management plans. The Advisory Committee is pleased that some conservation authorities and municipalities are already involved in watershed management. Of course, where the two initiatives are undertaken—watershed management and source protection—they should be consistent.

A Multi-Barrier Approach to Protection of Drinking Water

The Advisory Committee, as well as Justice O'Connor, agrees with the experts who say that the best way to ensure the safety of drinking water is through the use of a multi-barrier approach that starts with source protection planning. The key elements of a multi-barrier approach are, starting with the focus of this report, *source protection*, followed by *water treatment* and, at the end of the pipe, *water distribution*. As stated by Justice O'Connor:

> The multiple barrier approach is well-entrenched in the water industry, for good reasons. Putting in place a series of measures, each independently acting as a barrier to passing water-borne contaminants through the system to consumers, achieves a greater overall level of protection than does relying exclusively on a single barrier (e.g., treatment alone or source protection alone). A failure in any given barrier will not cause a failure of the entire system. The challenge is to ensure that each of the barriers is functioning properly, so that together they constitute the highest level of protection that is reasonably and practically available.
>
> (*Part Two Report of the Walkerton Inquiry*; p.6)

The Advisory Committee also agrees with Justice O'Connor on the strengths of a source protection program which, along with clear benefits to human health, also provide many environmental and ecological benefits:

> A strong source protection program offers a wide variety of benefits. It lowers risk cost-effectively: keeping contaminants out of drinking water sources is an efficient way of keeping them out of drinking water. This is particularly so because some contaminants are not effectively removed by using standard treatment methods. As a result, protecting drinking water sources can in some instances be less expensive than treating contaminated water. Moreover, protecting sources is the only type of protection available to some consumers – at present, many rural residents drink untreated groundwater from wells. The protection of those groundwater sources is the only barrier in their drinking water systems.
>
> (*Part Two Report of the Walkerton Inquiry*; p.89)

Clearly, no single component in the drinking water management cycle—from source protection to treatment to distribution—can guarantee the safety of Ontario's drinking water. Each piece of the system needs to work together to prevent or reduce the risk of drinking water contamination.

Source protection needs to be part of a holistic, multi-barrier approach to drinking water safety and it is in this light that the Advisory Committee offers its recommendations.

The Advisory Committee recommends that:

1. **The government require the watershed-based source protection framework described in the Advisory Committee's report and recommendations to be used in all watersheds in Ontario.**

2) FRAMEWORK FUNDAMENTALS

Watersheds are experiencing daily pressures that stem from historical and current land uses, both within and outside the watershed, as well as pressures that come from new land uses. However, every watershed has limits to the stress that can be accommodated before it is degraded and more difficult and expensive to rehabilitate.

This section sets out the fundamentals of the framework that should guide source protection planning in Ontario, recognizing its important position as the first in the series of barriers that help ensure a safe and sustainable supply of drinking water.

Responsibility and Accountability

Ultimately, the Advisory Committee believes the framework described in this report will lead to success by, among other benefits, creating a sense of co-ownership among the many stakeholders involved in source protection.

Consistent with Justice O'Connor, the Advisory Committee places the ultimate responsibility for ensuring source water protection with the province, specifically, the Ministry of the Environment (MOE). However, also in reference to Justice O'Connor's stated position, the Advisory Committee also agrees that the MOE cannot be solely responsible.

Within the provincial government, led by the Ministry of the Environment, the Ministries of Health and Long-Term Care, Natural Resources, Municipal Affairs and Housing, and Agriculture and Food will need to be significantly involved in source water protection. Municipalities will play a very large role in source protection with significant responsibilities and a commensurate level of accountability. First Nations as well as other governments such as the federal government, must be involved and accountable for their part. Also, land owners and users, source water users and the public must be involved and responsible for making their own contributions. Finally, the role of conservation authorities, as envisioned by Justice O'Connor (and this report), will be expanded to give them additional responsibilities, recognizing the range of decisions for which they will be accountable.

The Advisory Committee recommends that:

2. Consistent with Justice O'Connor, the provincial government, specifically, the Ministry of the Environment, has the ultimate accountability for ensuring source water protection, notwithstanding the shared responsibility of all governments and stakeholders to contribute to our collective goal of ensuring a sustainable supply of safe clean drinking water.

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Goal of Source Protection Plans

Ontarians are strongly in favour of source protection as a key component of overall drinking water management. While source protection is closely allied with water resources' other ecological and recreational values, the critical public health goal of maintaining and sustaining secure drinking water supplies must take precedence in these plans.

The Advisory Committee takes a comprehensive approach that recognizes that the twin goals of protecting human health and source protection can be achieved at by preventing, identifying, managing and evaluating risks through decision-making processes embedded in the source protection planning process.

The Advisory Committee recommends that:

3. **The goal of watershed-based source protection planning in Ontario is to protect human health through the protection of current and future sources of drinking water, including inland lakes, rivers and groundwater, from potential contamination and depletion through locally-developed watershed-based source protection plans.**

Scope of the Framework Regarding the Great Lakes

As many Ontarians know, the Great Lakes are the receiving body for most of the watersheds in Ontario. Because a majority of the province's population receives drinking water from the Great Lakes, the Advisory Committee deliberated on whether to include the Great Lakes in the scope of its work. (For purposes of this report, the Great Lakes are defined from the low water mark of each water body.) As a source of drinking water, the Advisory Committee recognized that there is an important linkage between inland source protection efforts and Great Lakes water quantity and quality management. However, the Advisory Committee agreed that the focus of this framework should apply to the development of source water protection plans for *inland waters*, including the rivers that are the connecting channels between the Great Lakes.

One of the primary reasons for this decision is that the Great Lakes are international waters shared with the U.S. federal government and the eight Great Lakes states. There are numerous pieces of legislation, treaties and agreements that govern how the many stakeholders address water quality and quantity impacts, as well as many established forums and partnerships to deal with Great Lakes issues.

Regardless, the Advisory Committee strongly believes that communities that obtain their drinking water from the Great Lakes share in the responsibility to protect and enhance Great Lakes drinking water, as well as inland water sources. One of the expected outcomes of this source protection framework is that, when implemented, source protection plans will complement and contribute to the protection and improvement of Great Lakes water quality and quantity.

The Advisory Committee recommends that:

4. While the source protection planning framework focuses on inland waters, all communities and water users whose source of water is the Great Lakes share in the responsibility for the protection and enhancement of the waters of the Great Lakes, as well as inland water sources. Furthermore, the Ministry of the Environment should require any entity that discharges waste water, rural run-off or storm water to the Great Lakes to manage or improve the quality of its discharges to a standard that meets the objectives of source water protection.

5. As the province negotiates with its Great Lakes partners, it should recognize the benefits of source protection and work to have its principles incorporated into future agreements.

Principles Guiding Source Protection Planning

In this section, the Advisory Committee identifies the principles that should guide all source protection planning. Putting these principles into practice will help ensure a consistent approach to the development and implementation of source protection plans across Ontario.

How these principles are defined in law is critical. The Advisory Committee describes some terms in the Glossary to this report; these are not intended as legal definitions, but to provide clarification for readers of this report. The Advisory Committee asks that the lawmakers be extremely conscious of testing definitions against the principles listed below, as well as against the meaning of important concepts (e.g., precautionary principle) as set forth in the Glossary.

The Advisory Committee recommends that:

6. Decision-making that could have potential impacts on human health and affect water quality or quantity be guided by the following principles:
   - **Sustainability:** Water is essential for our health and ecosystem viability and must be valued as finite. Source protection plans should consider historical, existing, new and future land uses when considering how to ensure clean sources of drinking water now and in the future.
   - **Comprehensive:** All watershed-based source protection plans must take a precautionary approach that uses the best available science and is subject to continuous improvement as our knowledge increases. The plan must be defensible and have the flexibility to accommodate Ontario's diverse watersheds.

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- **Shared Responsibility and Stewardship:** While the Ministry of the Environment has ultimate accountability for ensuring source water protection, responsibility for specific outcomes is shared among all water managers, users and land owners.
- **Public Participation and Transparency:** There must be open discussion and communication of the source protection planning process and its results, from development to implementation. Stakeholders and the public will have opportunities for meaningful input.
- **Cost Effectiveness and Fairness:** The costs and impacts on individuals, land owners, businesses, industries and governments must be clear, fair and economically sustainable. Source protection planning must access all information that is practical and reasonable and use technologies and risk management practices to maximize the protection of public health.
- **Continuous Improvement:** Source protection planning is built on a commitment to continuous improvement, including peer review, that requires ongoing support of all stakeholders to ensure successful implementation based on assessment, monitoring, evaluation and reporting, followed by appropriate modifications to the plan.

Legislative Basis for Source Protection Planning

The Advisory Committee recommends that the framework be enshrined in new watershed-based source protection legislation. Having a *one window* approach would help promote a clear understanding of what source protection means and what it is intended to achieve. This would benefit the public, as well as stakeholders who may have new obligations. The overriding need for clarity in identifying the circumstances in which source protection takes precedence over other considerations must be recognized by those drafting new legislation and amending existing legislation. The Advisory Committee also notes that existing powers are not being used to their fullest extent, and recommends that any new legislative provisions should focus on gaps in the current framework.

Consolidating source water protection provisions in one piece of legislation would also help to prevent difficulties sometimes associated with having multiple pieces of legislation. This may be complemented by creating a consolidated set of regulations under the source water protection legislation.

The Advisory Committee is conscious that this recommendation differs to some degree from Justice O'Connor who proposed that source protection should be implemented through amendments to the *Environmental Protection Act*. However, it is consistent with Justice O'Connor's recommendations, in recognizing that source protection should be separate from drinking water

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The Advisory Committee is conscious that this recommendation differs to some degree from Justice O'Connor who proposed that source protection should be implemented through amendments to the *Environmental Protection Act*. However, it is consistent with Justice O'Connor's recommendations, in recognizing that source protection should be separate from drinking water treatment and distribution for the purpose of legislation. Justice O'Connor also highlights the need to reduce duplication among pieces of legislation by consolidating them in one place. In this too, the Advisory Committee is consistent with his recommendations. Through recommending a stand-alone piece of source protection legislation, the Advisory Committee believes it is consistent with the *intent* of the *Part Two Report of the Walkerton Inquiry* in all fundamental respects.

Two of the most important decision-making principles articulated by Justice O'Connor relate to determining when source protection *supersedes* other legislation and when it should only *inform* the decision at hand. These are:

> Recommendation 4: Provincial government decisions that affect the quality of drinking water sources must be consistent with approved source protection plans.
>
> Recommendation 5: Where the potential exists for a significant direct threat to drinking water sources, municipal official plans and decisions must be consistent with the applicable source protection plan. Otherwise, municipal official plans and decisions should have regard to the source protection plan. The plans should designate areas where consistency is required.
>
> (*Part Two Report of the Walkerton Inquiry*; p.89)

These decision-making principles are wholly supported by the Advisory Committee and must be given the force of law to ensure they are respected by municipal and provincial decision-makers.

Where human health is a concern, it seems clear that source protection legislation will supersede other legislation. Over time, official plans must be amended to be in keeping with approved source protection plans. Where the potential exists for a significant direct threat to drinking water sources, municipal official plans and decisions must be consistent with the applicable source protection plan. In areas with a lesser degree of threat, municipal official plans and decisions should have regard to the source protection plan. Similarly, provincially-issued permits to take water (PTTW) and certificates of approval (CsofA) must be consistent with approved source protection plans.

It will take several years to make source protection a reality in all Ontario watersheds, and the Advisory Committee believes that initial source protection plans must be done as quickly as possible. To ensure that source plans are undertaken as quickly as is practicable, the Advisory Committee believes it is necessary to include a schedule of initial plans in the legislation.

Finally, given the complexity of source protection planning, the Advisory Committee also recognizes that, in addition to the legislation and regulations, more guidance on certain subjects will be needed. The government must update existing technical guidelines or develop new ones, as required, to assist planning participants to understand, interpret and implement source water protection plans.

The Advisory Committee recommends that:

7. A stand-alone piece of legislation for source water protection be developed that incorporates provisions related to source protection from other legislation so that the legislation will be as clear and comprehensive as possible.

8. Where risk to human health is the concern, source protection legislation should supersede other legislative provisions and other considerations, consistent with the hierarchy set out by Justice O'Connor (refer to Appendix A: Justice O'Connor Recommendations 4 and 5). This also requires provincial decisions affecting water quality and quantity, such as permits to take water, the Oak Ridges Moraine Conservation Plan and certificates of approval, etc., to be consistent with source protection legislation in the same way.

9. Other legislation, such as the *Environmental Protection Act*, *Municipal Act*, *Planning Act*, *Nutrient Management Act*, *Drainage Act*, *the Brownfields Statute Law Amendment Act* and the *Mining Act*, etc., be amended where necessary to be consistent with the source protection legislation.

10. Source protection legislation and regulations should include, among other requirements:
    - a schedule for completion of initial plans that reflects a phased approach that recognizes the capacity of participants and the existing level of risk (watersheds at a higher risk should be required to develop and implement plans more quickly; watersheds with high quality water should be protected from potential contamination; the province should consult with stakeholders when establishing the schedule);
    - all planning areas must initiate the planning process within two years of the effective date of the legislation in accordance with the legislated schedule and each plan, once started, should generally be completed within three years (source protection plans must be in place across Ontario by the end of the fifth year);
    - the power for the Minister of the Environment to identify the planning areas to which a specific source protection plan is to apply and to designate the organization with lead responsibility for co-ordinating plan development for the planning area;

- the roles and responsibilities of the key parties involved in source protection planning (see also 3) THE PLANNING PROCESS);
- the minimum content of source protection plans (refer also to Advisory Committee Recommendation 31);
- the process requirements for the source protection plan development, including local consultation, as well as clear public reporting requirements (these requirements would also include those related to the approval process); and
- grounds for appeal related to the content or process used in developing source water protection plans, the entity or body which is responsible for hearing these appeals, associated timelines and other procedures and requirements (refer also to Advisory Committee Recommendations 39 and 40).

Gaps in the Current System

In its deliberations, the Advisory Committee considered where gaps in the current system should be addressed through awarding new powers. Some of these new powers will, no doubt, be given to municipalities because of the key role they play in source protection-related matters. In fact, many of these gaps have been identified by Ontario municipalities that are already engaged in source water protection. However, given that power should flow to the accountable body, the Advisory Committee recognizes that, once further implementation details are worked out, including funding, items on the following list may be better assigned to an entity other than municipal government.

With these cautions, the Advisory Committee believes that some of the gaps that need to be addressed include new powers to:

- require routine disclosure of chemicals used or stored on-site, with appropriate confidentiality requirements;
- require measures for the containment of chemicals, including plans for addressing leaks and spills;
- require monitoring, including the installation of monitoring wells in specific high risk circumstances;
- enter into agreements with property owners and to attach relevant water protection conditions (e.g., secondary containment for chemical storage, monitoring requirements, etc.) on development applications;
- control the drilling of new private wells and to require the proper plugging and sealing of unused wells in vulnerable areas where municipal drinking water supplies are potentially affected;
- require regular maintenance and repairs and enable periodic inspection of septic systems;
- require the effective decommissioning of septic systems prior to redevelopment;

required, to assist planning participants to understand, interpret and implement source water protection plans.

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- require measures for the containment of chemicals, including plans for addressing leaks and spills;
- require monitoring, including the installation of monitoring wells in specific high risk circumstances;
- enter into agreements with property owners and to attach relevant water protection conditions (e.g., secondary containment for chemical storage, monitoring requirements, etc.) on development applications;
- control the drilling of new private wells and to require the proper plugging and sealing of unused wells in vulnerable areas where municipal drinking water supplies are potentially affected;
- require regular maintenance and repairs and enable periodic inspection of septic systems;
- require the effective decommissioning of septic systems prior to redevelopment;

- require appropriate notification of contaminants associated with historic activities, as they are discovered through re-development;
- require or promote conservation initiatives; and
- deal effectively with non-compliance (e.g., adding a charge to the associated property tax bill for work done by the municipality as a way to deal with non-compliance).

New Powers for Municipalities

Municipalities will be key players in the development and implementation of watershed-based source protection plans, not only through their representation on conservation authorities, but also through their critical role in implementation in terms of controlling and influencing land uses and land use planning.

Currently, some municipalities have noted that their ability to protect drinking water sources from contamination is constrained in some respects.

Municipalities can influence the location of new high risk land uses, but only prior to their establishment. They can also restrict the establishment of new uses where they would present a threat to surface or groundwater through their official plan, and can impose conditions before issuing approvals for some new developments through the planning process. However, it must be recognized that the *Planning Act* applies primarily during that limited period of time when a proposed development is proceeding through the approvals process and during initial construction. These existing mechanisms do not provide for long-term monitoring and enforcement.

Municipal ability to regulate *existing* land uses is even more limited. Some municipalities have made progress working with landowners and industry on a voluntary basis to protect drinking water sources. However, municipalities cannot make this type of co-operation mandatory.

The Advisory Committee strongly recommends that the province commit to working with municipalities to develop appropriate new powers and supporting tools to prevent contamination of drinking water sources and supplement existing powers (see Interim Risk Management section below for more information on existing municipal powers). Appropriate powers and supporting tools will enable municipalities to implement source protection plans as they relate to *existing, future* and *new* activities, so that high-risk activities can be appropriately managed in the short and long-term.

The Advisory Committee recommends that:

11. The province work with municipalities and other stakeholders to identify the appropriate types and scope of new municipal powers that should be made available for the purposes of source water protection, including dealing with funding issues. Then, the province should take steps to ensure that the agreed-upon list of new municipal powers is provided to municipalities so that they may use

them to better protect source water and implement watershed-based source protection plans (refer also to Advisory Committee Recommendations 33 and 34).

New Responsibilities for Conservation Authorities

There are 36 conservation authorities in Ontario: 31 covering southern Ontario and 5 in Northern Ontario centred around the major population centres (i.e., Sudbury, North Bay, Thunder Bay, Sault Ste. Marie and Timmins). Considerable land in Northern Ontario is not covered by a conservation authority.

Under the *Conservation Authorities Act*:

> The objects of an authority are to establish and undertake, in the area over which it has jurisdiction, a program designed to further the conservation, restoration, development and management of natural resources other than gas, oil, coal and minerals.

Conservation authorities have powers to undertake studies for the purpose of managing natural resources and many conservation authorities have taken a leadership role in watershed management planning with the support of local municipalities. In terms of water management, conservation authorities can regulate the use of water from surface waters in their areas, and they have specific regulatory responsibilities for floodplains and related water hazards.

Consistent with Justice O'Connor, the Advisory Committee recommends that, wherever possible, conservation authorities be the organization given responsibility for co-ordinating the development of watershed-based source protection plans:

> "Conservation authorities are well positioned to manage the development of draft watershed-based source protection plans. They have the mandate and, in many cases, the experience and the respect of affected local groups that will be required to coordinate the development of the plans."
>
> (*Part Two Report of the Walkerton Inquiry*: p.100)

Conservation authorities currently receive provincial funding for flood control, and can collect voluntary levies from municipalities for doing agreed-upon work. For the most part, this means that conservation authorities are not resourced in a way that is sufficient or appropriate for their new and important role in leading the development of watershed-based source protection plans.

Since source protection planning will be mandatory, the Advisory Committee believes that conservation authorities will need to have additional funding to offset certain direct costs related to

- require appropriate notification of contaminants associated with historic activities, as they are discovered through re-development;
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Since source protection planning will be mandatory, the Advisory Committee believes that conservation authorities will need to have additional funding to offset certain direct costs related to source protection. This could include, among other potential sources, a charge being added as a line item to the municipal tax bill or funding received directly from the provincial government.

There are other issues, in addition to funding, that need to be resolved. There are conservation authorities in watersheds that contain over 90% of Ontario's population and municipal representation is built into their governance. However, some municipalities choose *not* to participate. The Advisory Committee believes that this situation cannot be allowed to continue and that all municipalities in watersheds with a conservation authority must participate in some capacity. This participation should be mandatory.

The Advisory Committee recommends that:

12. **Conservation authorities be the organization given responsibility for co-ordinating the development of watershed-based source protection plans wherever possible.**

13. **The resourcing of conservation authorities recognize their new role in source protection planning and provide for new sources of funding in specific instances related to source protection planning (refer also to Advisory Committee Recommendations 33 and 34).**

14. **The province requires all municipalities and local services boards to participate in source protection planning.**

First Nations

The Advisory Committee wants to underline the importance of First Nations' participation in source protection planning and the fiduciary responsibility of the federal government. It acknowledges that the responsibility for drinking water programs on First Nations is shared among First Nations, Health Canada, Indian and Northern Affairs Canada and Environment Canada. The work being done by the federal government on First Nations initiatives on water / wastewater and the environment should be co-ordinated with source protection planning and implementation.

First Nations also have technical capabilities that can be utilized in the development and implementation of source protection planning. A good example is the Ontario First Nations Technical Services Corporation (OFNTSC) which is mandated to provide professional technical and advisory services to First Nations communities. The OFNTSC has been active in promoting the use of best practices in order to improve standards used in water systems found in First Nations by, for example, using the Ontario Drinking Water Standards as benchmarks.

Regardless of the complexity of the legal and fiscal relationships that exist, the Advisory Committee strongly believes that the goal of safe and reliable drinking water must be met throughout Ontario, both on and off First Nations land. As stated by Justice O'Connor:

> There is no justification for permitting lower public health standards for some residents of Ontario than those enjoyed by others. Members of First Nations are also residents of Ontario. There can be no justification for acquiescing in the application of a lesser public health standard on certain residents of Ontario than that enjoyed by others in the province. This is especially true when there is ample evidence that the water provided in First Nations communities falls well short of the standards of safety and adequacy that are considered acceptable in other parts of the province.
>
> (*Part Two Report of the Walkerton Inquiry*; p.487)

The Advisory Committee further suggests that the processes undertaken in developing existing watershed management plans may be useful as a model for the involvement of First Nations in the development and implementation of watershed-based source protection plans.

Finally, the recommendations of the Advisory Committee are not intended to affect any Aboriginal or treaty right recognized or affirmed by the *Constitution Act*. The Advisory Committee fully expects that the government will consult with First Nations about source protection decisions that may affect the use of Crown land and resources that are subject to Aboriginal and treaty rights.

The Advisory Committee recommends that:

15. Recognizing current agreements and relationships with conservation authorities, provincial ministries and other jurisdictions, First Nations (and their technical designates) and the Ministry of the Environment establish a working relationship with respect to source protection planning as soon as possible.

16. The province pursue a strategy with the federal government and First Nations that would support the ability of First Nations (and their technical designates) to be full participants in source water protection planning and implementation. This would include ensuring their involvement in the development of the plan, including participation on the source protection planning committee and in the consultation process, and in the implementation of watershed-based source protection planning through agreements.

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Interim Risk Management

The Advisory Committee is well aware of the gap that lies between the acceptance of this framework and the completion, approval, and implementation of source protection plans. At issue are the steps that need to be taken *today* to protect drinking water sources from existing and future impacts. In particular, the reduction of potential threats to human health and the protection of vulnerable areas are immediate priorities.

Existing powers to assist in this transition period include those under the *Planning Act* and Director's orders. Since planning controls can only deal with *new* land uses and cannot affect *existing* land uses, their power is somewhat limited. On the other hand, the power of the Director (an employee of the Ministry of the Environment) to designate interim drinking water source areas and to prohibit certain land uses and development within such areas could be strategically used to manage risks in key locations. Because this power can only be exercised on the basis of reasonable and probable grounds, the Advisory Committee believes that it may be one of the more important tools that can be used to protect Ontarians' health while we wait for source protection plans to be developed, approved and implemented.

The Advisory Committee wishes to praise those municipalities and conservation authorities that have already taken a leadership role in source protection and been recognized internationally for their expertise. This recommendation is *not* intended to slow their progress. In fact, the Advisory Committee recommends that their expertise be used to develop a model plan that could be used to assist others who are starting up the source water protection *learning curve*. Such a model plan should be developed as soon as possible so that those new to source protection can begin to understand its principles and start to incorporate its considerations into their decision-making processes. The Advisory Committee asks that consideration be given to inviting Conservation Ontario (the organization that represents the common interests of Ontario's 36 conservation authorities at the provincial and federal level) to help co-ordinate this activity.

The Advisory Committee recommends that:

17. **The province, municipalities and conservation authorities use their available powers to manage potential threats to human heath and protect sources of drinking water by taking action with respect to high-risk activities and land uses until source protection plans are approved and implemented.**

18. **Conservation Ontario and the province provide a model source protection plan, based on existing source protection plans, that will be used as a guide in the interim by those without source protection plans. This model would establish a common platform that would be informed by details particular to each area.**

Financing Initial Source Protection Plans

The Advisory Committee has examined the issue of how initial source protection plan development is to be funded. Justice O'Connor favoured a combination of funding mechanisms for source protection planning, indicating that the province take the lead role, with contributions from other sources, such as municipal water rates and user fees. Note, that the issue of funding of source protection planning and implementation on an ongoing basis is discussed later in this report (see **3) THE PLANNING PROCESS: Toward Implementation**).

Since this is the first instance of mandatory province-wide source protection planning, there is a high level of uncertainty in estimating its costs. As a result, the Advisory Committee recommends that the province substantially fund the development of all initial source protection plans, primarily to ensure the earliest possible start for source protection planning. This approach will also give those involved more time to fully analyze the cost implications prior to developing a formal funding strategy. Over time, based on experience and with better cost estimates available, the participation of other potential funders in the support of ongoing planning can be negotiated.

Once planning is underway and Ontario is closer to implementing approved source protection plans, more detailed cost estimates for implementation will be needed. The Advisory Committee recommends that the government consult with stakeholders on the financing issues related to implementation at this later date.

The Advisory Committee recommends that:

19. **The province substantially funds development of all initial watershed-based source protection plans.**

20. **Contributions from sources in addition to the provincial government, consistent with Justice O'Connor's report, be negotiated to support ongoing source protection planning (refer also to Advisory Committee Recommendations 33 and 34).**

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3) THE PLANNING PROCESS

This section describes a generic process for the development of a watershed-based source protection plan, outlining the roles and responsibilities of the participants in the process. This section also sets out a high level overview of the process, from the initial establishment of the source protection planning committee through to plan development and approval.

Planning Areas

In establishing planning areas, the Advisory Committee suggests that the following factors be considered:

- environmental factors, including: natural watershed boundaries, complexity of water issues, intensity of land use, geological conditions, and existence of regional aquifers;
- socio-economic factors, including: population density, and economic sectors;
- administrative factors, including: municipal boundaries, First Nations boundaries, conservation authority boundaries, and health unit boundaries; and
- the ability to access the necessary expertise: experience with source protection planning, the legislated phased-in planning schedule, and the availability of experts.

Depending on the location and its unique circumstances, one criteria may outweigh the others. In particular, the differences between southern and Northern Ontario in terms of population, land use and land ownership (e.g., private vs. Crown) may require a different weighting of criteria.
In southern Ontario, in the opinion of the Advisory Committee, planning areas should generally be based on tertiary level watersheds. In Northern Ontario, it is more appropriate, in most cases, that planning areas be based on secondary level watersheds. While the land mass in Northern Ontario is very large, fewer planning areas would suffice given the lower intensity of land use. Conservation authorities in Northern Ontario should be invited to co-ordinate planning within their current watershed jurisdiction, as well as the entire secondary level watersheds in which they are situated.

In all cases, the planning areas should also be based on the current distribution of conservation authorities in the province. In watershed-based source protection planning areas with more than one conservation authority, the organization with the most experience and technical expertise in watershed management will take the lead. The designation of planning areas could also consider the pairing of a conservation authority that has source protection experience with one that does not have that level of expertise.

The Advisory Committee also proposes that, in some instances, watersheds can be grouped into larger planning areas to achieve efficiencies in the planning process. For example, in the case of a small watershed adjacent to a larger one, or several neighbouring small watersheds, it may be useful to consider joining them to form a single planning area. This approach would result in approximately 16 planning areas in southern Ontario and approximately 8 in Northern Ontario. A map in Appendix C provides an example of how planning areas could potentially be distributed across Ontario.

The Advisory Committee recommends that:

21. **For the purposes of developing source protection plans, there should be approximately 16 planning areas in southern Ontario and approximately 8 in Northern Ontario. This recognizes that the grouping of watersheds into planning areas may enable more effective and efficient sharing of resources.**

Source Protection Planning Committee (SPPC)

The first requirement is that a Source Protection Planning Committee (SPPC) be established in each planning area designated by the Minister. The chair of the SPPC will also be designated by the Minister. Each SPPC will steer the planning process, ensuring it meets the requirements of the provincial framework and the priorities of the planning area.

Organizationally, the SPPC will function as an advisory committee of the board of directors to a conservation authority and its membership will be broadly representative of the diverse interests in source protection.

The minimum requirements related to the composition of the SPPC will be consistent across the province. It is mandatory for each SPPC to include appropriate representation of affected municipalities, conservation authorities, First Nations, public health, agriculture, industry, environmental groups, provincial ministries and federal departments. Additional members may be determined by the chair of the SPPC in consultation with the board of the conservation authority.

It is the responsibility of the lead conservation authority to ensure proper representation on the SPPC. For example, where the planning area is highly urbanized, representatives from the development industry should be invited to participate. In more rural areas, greater representation from the agricultural community may be required. Regardless, the Advisory Committee wishes to emphasize that appropriate representation and involvement of affected parties will be very important to obtaining successful 'buy-in' within the community.

The size and composition of the SPPC should be flexible enough to accommodate source protection planning in both complex watersheds with many municipalities (exhibiting a wide range of issues and interests) and less complex watersheds with few municipalities and a smaller set of

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The size and composition of the SPPC should be flexible enough to accommodate source protection planning in both complex watersheds with many municipalities (exhibiting a wide range of issues and interests) and less complex watersheds with few municipalities and a smaller set of issues and interests. There may also need to be variations to accommodate the unique characteristics of Northern Ontario. However, no SPPC should be so large as to be unwieldy. The Advisory Committee recommends that membership of the SPPC be limited to a maximum of 18 people, plus the chair. This assumes the existence of numerous other opportunities for involvement in working groups, for example, as well as through participation in broad public consultations.

In terms of its functions, the SPPC in each planning area will:

- incorporate the principles set out in the provincial framework and ensure that the source protection plan satisfies the goals and objectives of the framework;
- develop its operating terms of reference, including transparent decision-making and dispute resolution processes, as well as a work plan (the terms of reference must also define what constitutes sufficient municipal support for the draft source protection plan to be recommended to the Ministry of the Environment; this must be agreed to by the board of directors of the conservation authority and forwarded for approval by the MOE as one of the first steps in the plan development process; (refer also to Advisory Committee Recommendation 26);
- provide direction for the development of the draft source protection plan, including the establishment of any working groups, as required;
- establish an independent expert panel that would, in the initial planning stages, review the science, assumptions and preliminary conclusions drawn, and provide advice to inform the planning process;
- co-ordinate the collection and analysis of data to support the source protection plan and ensure the best available science is used;
- establish and co-ordinate a transparent local consultation process to ensure broad consultation among affected parties (refer also to sub-section **Planning Area Consultation Process** below, under section **3) The Planning Process**);
- develop the draft of the source protection plan; and
- submit the draft plan to the board of directors of the conservation authority for consideration.

Following consideration of the draft and the preparation of a recommended draft, the board of directors of the conservation authority will submit the recommended draft to the Minister of the Environment for approval. As stated above, the SPPC's terms of reference must also define what constitutes sufficient municipal support for the recommended draft source protection plan. This *must* have been agreed to by the board of directors of the conservation authority and forwarded for approval by the MOE as one of the first steps in the plan development process.

The Advisory Committee recommends that:

22. Consistent with Justice O'Connor, the plan development process is co-ordinated by a conservation authority, or the Ministry of the Environment (or designate) in areas where there is no conservation authority. Where a conservation authority is in an area adjacent to large areas of Crown land, the conservation authority should play a co-ordinating role alongside the Ministry of the Environment.

23. The SPPC will act as an advisory committee to the board of directors of the conservation authority. It is the board(s) of directors that submits the recommended draft plan to the Ministry of the Environment for approval. A parallel process will be established for areas that do not have a conservation authority.

24. The chair of the SPPC will be appointed by the Minister based on a recommendation from the board(s) of directors of the conservation authorities. The chair may be a full-time position in some areas.

25. Membership on the SPPC be distributed as follows: one-third municipal representatives; one-third provincial, First Nations and federal representatives, and; one-third local public health and other stakeholders. At a maximum, SPPCs will be made up of 18 individuals plus the chair. Note, that each stakeholder or group of stakeholders would select its own representative(s) to the SPPC. In addition, the SPPC may establish working groups as necessary, providing another opportunity for direct involvement of others in the plan development process.

26. SPPCs must define in their terms of reference what constitutes sufficient municipal support for the draft source protection plan to be recommended for approval to the Ministry of the Environment. This must be agreed to by the board of directors of the conservation authority (or authorities) and forwarded for approval by the MOE as one of the first steps in the plan development process.

27. Each planning area will, as part of their responsibilities, constitute an expert panel made up of individuals that would, at key milestones, assess the appropriateness and validity of the approach, science and operational / management practices, and its advice will be used to inform the planning process.

Technical Expertise

The source protection planning process will also require technical support. Required expertise includes: land use planning, project co-ordination, expertise in water quality and water quantity, hydrogeology, geographic information systems and information management, and education and consultation.

Specialists are needed to manage technical studies and evaluations, facilitate collaborative planning efforts, and support the work of any working groups. To maximize efficiencies with regard to the availability and costs of acquiring such specialized skills, expertise may be shared between more than one watershed or source protection planning area, depending on watershed size, population, complexity, and issues.

The Advisory Committee is aware that there are a limited number of people with the expertise to support source protection planning. As a result, it recommends that the province ensure that planning areas have access to the specialists that they need.

The Advisory Committee recommends that:

28. Planning areas must have access to the necessary technical expertise to support the development, implementation and ongoing enhancement of source protection.

Planning Area Consultation Process

The objective of mandating a consultation process is to provide meaningful and substantial opportunities for input among the communities and stakeholders that fall within the boundaries of the planning area.

SPPCs must define in their terms of reference a plan for a consultation process that meets the minimum requirements that are recommended by the Advisory Committee (see Advisory Committee Recommendations 29 and 30). This must be agreed to by the board of directors of the conservation authority early in the planning process. One of the approval criteria that will be used by the MOE when reviewing the recommended draft plan is whether affected individuals and groups were consulted, in accordance with the terms of reference, and whether all minimum requirements for consultation were met.

The Advisory Committee recommends that:

22. Consistent with Justice O'Connor, the plan development process is co-ordinated by a conservation authority, or the Ministry of the Environment (or designate) in areas where there is no conservation authority. Where a conservation authority is in an area adjacent to large areas of Crown land, the conservation authority should play a co-ordinating role alongside the Ministry of the Environment.

23. The SPPC will act as an advisory committee to the board of directors of the conservation authority. It is the board(s) of directors that submits the recommended draft plan to the Ministry of the Environment for approval. A parallel process will be established for areas that do not have a conservation authority.

24. The chair of the SPPC will be appointed by the Minister based on a recommendation from the board(s) of directors of the conservation authorities. The chair may be a full-time position in some areas.

25. Membership on the SPPC be distributed as follows: one-third municipal representatives; one-third provincial, First Nations and federal representatives, and; one-third local public health and other stakeholders. At a maximum, SPPCs will be made up of 18 individuals plus the chair. Note, that each stakeholder or group of stakeholders would select its own representative(s) to the SPPC. In addition, the SPPC may establish working groups as necessary, providing another opportunity for direct involvement of others in the plan development process.

26. SPPCs must define in their terms of reference what constitutes sufficient municipal support for the draft source protection plan to be recommended for approval to the Ministry of the Environment. This must be agreed to by the board of directors of the conservation authority (or authorities) and forwarded for approval by the MOE as one of the first steps in the plan development process.

27. Each planning area will, as part of their responsibilities, constitute an expert panel made up of individuals that would, at key milestones, assess the appropriateness and validity of the approach, science and operational / management practices, and its advice will be used to inform the planning process.

Technical Expertise

The source protection planning process will also require technical support. Required expertise includes: land use planning, project co-ordination, expertise in water quality and water quantity, hydrogeology, geographic information systems and information management, and education and consultation.

Specialists are needed to manage technical studies and evaluations, facilitate collaborative planning efforts, and support the work of any working groups. To maximize efficiencies with regard to the availability and costs of acquiring such specialized skills, expertise may be shared between more than one watershed or source protection planning area, depending on watershed size, population, complexity, and issues.

The Advisory Committee is aware that there are a limited number of people with the expertise to support source protection planning. As a result, it recommends that the province ensure that planning areas have access to the specialists that they need.

The Advisory Committee recommends that:

28. **Planning areas must have access to the necessary technical expertise to support the development, implementation and ongoing enhancement of source protection.**

Planning Area Consultation Process

The objective of mandating a consultation process is to provide meaningful and substantial opportunities for input among the communities and stakeholders that fall within the boundaries of the planning area.

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The Advisory Committee recommends that:

29. The minimum requirements for a transparent local consultation process in a planning area will include having:
    - meetings of the Source Protection Planning Committee that are advertised and open to public attendance;
    - draft plans and proposals published widely;
    - adequate time and information to ensure a range of views are fully canvassed and considered;
    - invitations for public comment in writing;
    - documentation of responses to public input, as appropriate; and
    - involvement of other affected local parties, including municipalities, local services boards, elected officials, land users, water system operators, First Nations, off-reserve Aboriginal communities, local public health officials, and the public, in its important role of drinking water consumer.

30. All Source Protection Planning Committees define in their terms of reference a plan for local consultation that meets minimum requirements and this must be agreed to by the board(s) of directors of the conservation authority early in the planning process.

Content of the Initial Source Protection Plan

The Advisory Committee feels that there should be some consistent component parts in a source protection plan and that these would be set out as a provincial standard. This content must be flexible enough to deal with local conditions, and it is understood that the relative emphasis of the individual components may vary from watershed to watershed.

The Advisory Committee recommends that:

31. The components to be included in a source protection plan integrating Justice O'Connor's list of "key ingredients" are as follows:
    - objectives and targets of the source protection plan.
    - technical information including:
        - a water budget, including future water needs;
        - a fate of contaminants model, including assessment of future pollutant loadings and cumulative impacts;
        - maps, based on provincially prescribed definitions and methodology, that identify areas of high, medium and low vulnerability areas and sensitive water resources (refer to 4) Risk Management section);

  - a baseline map to establish the state of the watershed at the outset of the planning process and an overlay map of existing and potential land uses;
  - identification and delineation of natural features such as various types of wetlands, woodlands and riparian zones that contribute to the protection of drinking water sources;
  - identification of areas where a significant direct threat exists to the safety of the drinking water supply;
  - maximum contaminant loads to meet water quality objectives;
  - inventory of major point and non-point sources of contaminants and high risk land uses; and
  - maps of all significant water takings and areas experiencing stress due to water takings.
- identification of where source protection issues, exist such as:
  - where a significant direct threat exists to the safety of the drinking water source;
  - potential water allocation problems;
  - need for special operational limits to water taking;
  - areas where the plan might need to influence or govern municipal land use and zoning;
  - areas where farm water protection plans are needed;
  - areas where biosolids and septage spreading need special consideration;
  - contaminated site issues that need priority action;
  - priority areas for identifying and properly decommissioning unused or abandoned wells
  - priority areas for ending the misuse of abandoned pits and quarries or for their rehabilitation; and
  - identification of knowledge gaps and research needs for the watershed.
- an implementation plan* to manage the identified source protection issues, including roles and responsibilities, accountability, process, schedule and outputs.
- a monitoring and reporting plan*, including roles and responsibilities, accountability, process, schedule and outputs.
- a description of how the plan will be reviewed and updated, including roles and responsibilities, accountability, process, schedule and outputs.
- a description of outstanding or unresolved issues and how they will be dealt with* (these may be addressed through additional data collection, more detailed study and approved analytical tools).

**These may be supplemented by more detailed technical or other support guidelines to be developed by the province.*

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    - involvement of other affected local parties, including municipalities, local services boards, elected officials, land users, water system operators, First Nations, off-reserve Aboriginal communities, local public health officials, and the public, in its important role of drinking water consumer.

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**These may be supplemented by more detailed technical or other support guidelines to be developed by the province.*

Approval Process for Source Protection Plan

The steps in the approval process of a source protection plan are described below.

- Source Protection Planning Committee (SPPC):
    - Develop draft plan in the local watershed context according to the provincial framework, consistent with its terms of reference.
    - Submit draft plan to Conservation Authority Board for review, ensuring that it includes all mandatory requirements, including the demonstration of sufficient municipal support as defined in its terms of reference.

- Municipalities:
    - As described above, the definition of "sufficient municipal support" for the draft plan must be defined in the SPPC's terms of reference and agreed to by the board of directors of the conservation authority and approved by the MOE. This reflects the important role that municipalities will play in the development, endorsement and implementation of such plans (refer to Advisory Committee Recommendation 26).

- Conservation Authority Board of Directors (CA Board):
    - Review the draft source protection plan.
    - Consider any remaining outstanding concerns and uses best efforts to resolve the matter locally, as provided for in the SPPC's terms of reference. If it cannot be resolved locally, the recommended draft plan will note the objection to the issue, relay the concern and describe the attempts to resolve it locally. The rationale for the approach included in the recommended draft plan must be fully documented and provided to MOE.
    - Document any discrepancies between the draft plan as presented to the CA Board by the SPPC and the recommended draft plan which is forwarded to MOE for approval, including the rationale for any decisions that vary from the SPPC's draft.
    - Provides the recommended draft plan to MOE for approval (note that voting on the recommended draft source protection plan must be done on a 'one member, one vote' basis as is the conservation authorities' practice for issues other than budgetary items).

- Province:
    - Upon receipt of recommended draft source protection plans, MOE leads the government's review, as well as any inter-governmental consultations (e.g., with the federal government).
    - MOE may return plans with a request that revisions be made.
    - Post draft recommended plans on the Environmental Bill of Rights Registry (EBR).
    - Complete its review and make a decision on approval within three months of receiving the draft recommended plan in the absence of substantial revisions.
    - Provide clearly and publicly stated reasons if it rejects a watershed-based source protection plan in whole or in part.
    - Take over the development of a plan if an acceptable watershed-based source protection plan is not produced within a prescribed time limit.

The Advisory Committee recommends that:

32. The province define in legislation the criteria and process through which it will review and approve source protection plans based on the recommendations of the Advisory Committee and the results of the expert working group (refer also to Advisory Committee Recommendation 31 regarding the content of source protection plans).

Toward Implementation

Roles and Responsibilities

Once approved by the province, the source protection plan would start to be implemented. As stated above, the Advisory Committee is making only high level recommendations regarding implementation based on the understanding that detailed implementation planning is to follow. The outline of potential roles and responsibilities that the Advisory Committee's believes may be appropriate during implementation is as follows:

- Conservation Authorities (or the Ministry of the Environment or its designate in areas where there is no conservation authority):
  - Provide input to the municipal planning process to ensure consistency with source protection plans.
  - Provide input to provincial approval process for certificates of approval, permits to take water and other licenses to ensure consistency with source protection plans.
  - Provide input to other groups that are engaged in activities that may potentially affect human health or have an impact on water quality or quantity.
  - Manage and promote outreach activities and incentive programs.

- Municipalities:
  - Integrate requirements of source protection into planning and other decisions.
  - Ensure consistency of by-laws and other instruments (e.g., Official Plans) with the source protection plan.
  - Provide input to conservation authorities regarding outreach and incentive programs, as well as potentially supplementing their role in these areas.

- First Nations:
  - Integrate requirements of source protection into planning and other decisions.
  - Ensure consistency of Band Council Resolutions and other instruments with the source protection plan.

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- First Nations:
    - Integrate requirements of source protection into planning and other decisions.
    - Ensure consistency of Band Council Resolutions and other instruments with the source protection plan.

- Province:
    - Approve source protection plans.
    - Develop new tools for use in effectively implementing source protection planning.
    - Set legal framework for decision-making which applies to land uses and development impacting drinking water sources.
    - Determine how existing legislation (e.g., *Municipal Act*, *Planning Act*, *Environmental Protection Act*) continues to apply in areas covered by source protection plans and when any new source protection requirements override existing requirements.
    - Set policy for provincial approvals and licenses and issues them to ensure consistency with source protection plans.
    - Develop, in consultation with municipalities and conservation authorities, a range of tools to assist in the identification, calculation and management of non-point sources other than those addressed through the *Nutrient Management Act* (NMA) and, in vulnerable areas, may address issues in the NMA.
    - Require in legislation that existing and future provincial approvals of direct discharges and water takings must be consistent with the requirements of the source protection plan.
    - Apply clear, consistent and universally applicable criteria to establishing discharge limits for municipal wastewater discharges.
    - Support education and stewardship initiatives, as well as incentive programs.

Financing

The Advisory Committee examined at a high level the issue of how to fund source protection planning and implementation on an ongoing basis. It was guided by the words of Justice O'Connor on this subject:

> I favour a combination of funding mechanisms to pay for the source protection planning process….There is a strong argument in favour of provincial funding, on the basis of fairness….On the other hand, the proposition that source protection planning should be paid for exclusively out of provincial coffers runs contrary to the user-pay concept. It therefore seems reasonable that at least some component of the funding for source water protection should come from municipal water rates…[and] I recommend that some portion of the necessary funding come from user fees. In addition, some portion of the cost should be raised by those to whom Certificates of Approval are issued for discharging pollutants.
>
> (*Part Two Report of the Walkerton Inquiry*; p.116-117)

Like Justice O'Connor, the Advisory Committee believes that permanent funding mechanisms need to be in place to ensure that funding for source protection is available on a sustainable and ongoing basis. It is necessary, the Advisory Committee believes, that those who impact sources of drinking water and those who benefit from it should contribute to funding source protection. It is also important that users of a planning area should contribute financially to source protection. However, the ability to pay also needs to be a factor, which may mean some top-up funding for certain planning areas is required.

When examining options related to possible sources of funding for implementation, the Advisory Committee feels strongly that the funding mechanisms used should be linked to the body responsible for the activity that the funds will support. For example, a portion of municipal water rates and other charges would contribute to offsetting the cost of source protection activities for which the municipality is responsible, not those for which the province is responsible.

The Advisory Committee believes that there is great value in looking at incentive programs as a way to support source water protection, especially given the number of successful examples in other jurisdictions. New York City's approach, for instance, provides the agricultural community *and* the municipality with a long-term ability to enjoy financial advantages from the environmental benefits generated by the protection of source waters from contamination. Other ways to obtain participation in source protection activities include environmental farm plans, co-operative agreements, best management practices, public education and outreach, technical support, land stewardship and volunteer / community action initiatives.

More detailed cost estimates for implementation and ongoing planning will be needed. The Advisory Committee recommends that the government consult with different stakeholder groups on the financing issues related to implementation roles and responsibilities following receipt of this source protection planning framework. The Advisory Committee further recommends that the government negotiate a model for funding with stakeholders during the period of initial source protection plan development.

The Advisory Committee recommends that:

33. Consultation on implementation and ongoing planning, including how to pay for them, be undertaken with different stakeholder groups immediately following receipt of this source protection planning framework. This consultation should start from the list of potential roles and responsibilities presented by the Advisory Committee in its report.

34. The model for the sharing of costs to align funding mechanisms with the appropriate responsible body should be negotiated with stakeholders while the initial source protection plans are being developed. Furthermore, all those in a planning area, particularly those who impact sources of drinking water and those who benefit from it, should contribute, to some degree, to the costs of source protection.

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35. Incentive programs and payments for environmental benefits should be considered, especially in sensitive areas and well capture zones, as one way to encourage implementation of source protection measures and provide for long-term sustainability.

Review and Updating of Source Protection Plans

Given that source protection planning is committed to continuous improvement, a plan, even when approved, must continue to be reviewed and updated in order to take advantage of increases in our information base and available technologies. To provide certainty, the regulations should specify when plans should be formally updated. The groups involved in initial plan development and any newly identified participants should be convened periodically to review and revise the plan as necessary.

The Advisory Committee recommends that:

36. Groups involved in initial plan development and any newly identified participants should be convened periodically to review and revise the plan as necessary.

37. Proposed roles for those responsible for keeping plans up-to-date are as follows:
    - Conservation Authorities will be responsible for:
        - keeping the source protection plan up-to-date and for keeping other partners and interest groups informed of any changes;
        - revising the local consultation process and work plan, if required, to fill in the information gaps in the source protection plan on an ongoing basis; and
        - issuing implementation status reports.

    - Municipalities will be responsible for:
        - participating in source protection planning as a member of the conservation authority;
        - identifying new issues related to source protection and bringing them to the attention of the conservation authority; and
        - issuing implementation status reports.

    - First Nations will be responsible for:
        - working with the conservation authority on source protection planning;
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- The Province will be responsible for:
  - defining the updating process, including public consultation, by working with affected groups (e.g. to establish the formal source protection planning cycle)
  - mandating when a new or updated plan is required;
  - reviewing and updating standards; and
  - issuing implementation status reports.

Reporting Roles

There is a need to clearly define reporting roles in order to support source protection planning. For the provincial government, the following core reporting elements should be contained in its public annual report:

- the status of source protection plans and monitoring efforts across the province;
- provincial activities undertaken in support of source protection planning;
- status of water resources, including some identification and analysis of trends;
- a summary of watershed level information; and
- evaluation and recommendations for improvements and reporting on same.

The lead conservation authorities will be required to report to the province at pre-determined stages during the development of the source protection plan. Reports will be required on the progress of the draft plan's development, the consultation process and budgeting.

The lead conservation authorities will also produce annual reports (also provided to the province) that cover the following topics:

- progress reports on the status of plan development;
- distribution and availability of the draft plan, recommended draft plan and approved plan, as appropriate;
- state of the watershed's water in terms of quality and quantity;
- trend analyses;
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The Advisory Committee recommends that:

38. Consistent with Justice O'Connor, the government must report publicly on the status and progress of source water protection. Public reporting must be required from the Ministry of the Environment and each lead organization on watershed-based source protection plans and planning activities.

Appeals

Consistent with Justice O'Connor, the Advisory Committee is recommending the provision of limited rights of appeal that are restricted to parties within the planning area that are directly affected, including residents and landowners. The right of appeal needs to be limited to reduce the likelihood that the appeals process becomes the main forum for settling planning and land use issues. While limited, it is expected that the right of appeal would apply to provincial decisions and municipal decisions.

The Advisory Committee recommends that:

39. Consistent with Justice O'Connor, appeals should provide for limited rights of appeal to challenge source protection plans and decisions of provincial and municipal governments that are inconsistent with those plans. These appeals may be heard by the Environmental Review Tribunal (ERT) or another appropriately designated appeals body.

40. Amendments to existing appeal processes (e.g., under the *Planning Act*, the *Ontario Water Resources Act*) be developed, where necessary, to provide appropriate grounds of appeal related to source protection planning. The details of appeal processes related to source protection must be developed as part of implementation planning.

Public Consultation and Education

Given the potential significance of source protection planning for Ontarians present and future, it is important to get it right. The Advisory Committee recommends that Ontarians should be provided with an opportunity to review the framework and provide input in the short-term.

Over the longer term, the Advisory Committee encourages all stakeholders to recognize that only an informed Ontario public will fully understand and participate in the protection of this valuable resource. Public education is a very important part of any successful source protection framework.

The Advisory Committee recommends that:

41. The province must undertake broader public consultation on the recommendations made in the Advisory Committee's report to ensure that all stakeholders and Ontarians have an opportunity to contribute to the development of the source protection planning framework prior to legislation being introduced

42. The province, conservation authorities, municipalities and other stakeholders ensure that public education and dissemination of information is undertaken to ensure that Ontarians fully embrace the importance of protecting our drinking water sources.

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4) RISK MANAGEMENT

The Advisory Committee believes that Ontario should promote the development of state-of-the-art risk management. This methodology should be based on a continuous improvement process, including peer review, using the best available science to evaluate the potential impact of specific threats to drinking water sources.

This section describes the factors that the Advisory Committee has identified as the key considerations in risk management for ground and surface water. It also proposes a preferred process for assessing threats to the quality and quantity of sources.

The issue of information gathering – for plan development and risk management – is discussed separately in the next section.

Threat Assessment

Threats to drinking water sources exist in virtually all watersheds. Such threats may be natural or brought about by human activity, derive from a point or non-point source, be intentional or unintentional, etc.

The manner in which threats are managed will be defined on a site-specific basis according to the level of risk to the water source that is presented by the threat, and may be guided by the need to meet the Ontario Drinking Water Standards. The level of risk will be dependent on many factors including the characteristics of the threat (e.g., chemical toxicity) and the characteristics of the water source (e.g., its vulnerability). The vulnerability of the water source establishes the nature of the interaction between the water source and the threat, reflecting that not all water sources will react in the same manner to any particular threat.

Source protection planning should begin with an initial assessment. The objective of the assessment phase is to have all threats to water resources identified and categorized based on the relative risk they represent. This allows risk management decisions to be made on both a site-specific and watershed basis. The Advisory Committee is aware that inventories of threats are underway in many watersheds in Ontario as part of provincially-funded groundwater studies. These activities will contribute valuable information to the source protection planning process.

Since all potential threats do not pose the same level of risk to all drinking water sources, actions taken will vary across watersheds. The extent of the threat will also vary due to the physical characteristics of the land and the uses to which it has been put. In all cases, the Advisory Committee recommends that a more prescriptive approach to managing threats be taken in the most vulnerable areas. Based on the precautionary approach, the Advisory Committee proposes that vulnerable areas be identified as quickly as possible to remove uncertainty. (For an indication of how a "vulnerable area" may be defined, refer to the Glossary.) However, the Advisory

Committee cautions that as source protection evolves, this definition may need to be revisited to ensure that it is—and remains—appropriate for source protection.

The Advisory Committee recommends that the development of a provincially-mandated threat assessment process result in:

- a single reference list of potential threats to drinking water sources to ensure consistency among watersheds in the identification and categorization of threats;
- a mechanism that will be used to prioritize responses to threats (the primary consideration in the ranking of potential threats should be the protection of human health);
- similar threats being dealt with the same way in all watersheds;
- a provincial guideline to aid in the assessment of cumulative impacts and assimilative capacities within and among watersheds; and
- assumptions that are able to deal with the range of watershed characteristics in Ontario so that the process may be used with a reasonable degree of consistency from one watershed to the next.

The Advisory Committee believes that the provincial threat assessment process will be sufficiently rigorous if it can, at a minimum, achieve the following results:

- Threat identification that distinguishes:
  - point source and non-point source threats;
  - transient and stationary threats;
  - water quality and water quantity threats;
  - surface water and groundwater threats;
  - direct and indirect threats; and
  - emerging threats.

- Assessments of source water vulnerability and sensitivity, including a choice of methodology, that ensure:
  - the assessments are undertaken at the appropriate scale;
  - proper identification of areas where the water resource is vulnerable to impact; and
  - technically sound and defensible collection of information.

- Assessments of the water resource's vulnerability that consider factors such as:
  - physical barriers (aquitards, slope of land, hydraulic gradients, vegetation, etc.);
  - reliability and sufficiency of data;
  - areas of groundwater recharge;
  - surface water – groundwater relationships; and
  - well heads and surface water intakes.

- Assessments of the sensitivity of water sources associated with:
  - the nature of the threat and associated risk;
  - the physical character of the aquifer or surface water feature;
  - relationships between surface water and groundwater;
  - proximity to supply intakes;
  - the presence, features and functions of natural systems, such as wetlands, woodlands and riparian zones; and
  - existing water quality and water quantity concerns.

- Assessments of cumulative impacts and assimilative capacity, which are important for making long-term decisions regarding watershed development.

Risk Management Strategies

Many of the issues related to threat assessment and related risk management strategies are highly technical. In these matters, the Advisory Committee limits itself to identifying the broad issues which it believes must be considered.

The risk management strategies listed below apply to both ground and surface waters, except where indicated.

1. New Uses in the Most Vulnerable Areas
   - Use of all available tools (existing and any new powers awarded) to ensure prohibition, redirection of the activity or stringent requirements, as appropriate, for:
     - intensive and high-risk land uses, as well as uses associated with high risk factors;
     - waste management or disposal activities;
     - application of biosolids, septage and manure; and
     - directing development away from vulnerable areas as part of the development process.

2. New Uses in Less Vulnerable Areas
   - High risk uses or uses associated with high risk factors in less vulnerable areas should be appropriately managed through use of all available tools (existing and any new powers awarded), as appropriate.

3. Existing Uses in the Most Vulnerable Areas
   - The management of existing high risk activities must be done in a way that reduces risks in the most vulnerable areas.
   - Use of all available tools (existing and any new powers awarded) to ensure management, possible redirection of the activity or stringent requirements, as appropriate, for:
     - intensive and high risk land uses, as well as uses associated with high risk factors and including expansion of high risk uses;
     - waste management or disposal activities;

    - application of biosolids, septage and manure;
    - remediation of the effects of development in vulnerable areas; and
    - property owners in the most vulnerable areas be required to improve chemical storage and handling and undertake monitoring and reporting.

4. Existing Uses in Less Vulnerable Areas
    - Land uses and activities further from vulnerable areas should be addressed through an increased emphasis on education, voluntary measures and incentive-based instruments.

5. Water Quantity
    - Ground and Surface Water
        - Since water takings may result in local and downstream impacts, the province should establish clear, firm and public rules to ensure sound and defensible water takings are approved in a consistent manner and that unsound water takings are consistently rejected.
        - The province should recognize the role performed by natural features on the landscape, such as wetlands and woodlands, in protecting water quantity and quality.

    - Groundwater
        - Where practical, groundwater takings should be evaluated in the context of the water budget on a watershed basis. However, the province should consider that aquifers may extend beyond current watershed boundaries, and that large scale water takings (both those permitted and those not requiring permits, including large livestock watering) have the potential to influence groundwater flow patterns in existing watersheds.
        - Since large groundwater takings can alter the orientation of municipal well head protection areas, new or amended permits should only be issued when municipalities and landowners can ensure changes can be made locally to protect the new well head protection zone.

    - Surface Water
      At a minimum, surface water takings should only be permitted in the context of the appropriate water budget. Approval should consider the impact of the taking on the assimilative capacity of the water body, the impact on the water body for other uses and users, and the water quality objectives of the source protection plan.

In addition to the foregoing, there are a few cases—wells and septic systems / underground fuel storage tanks—for which the Advisory Committee has additional, specific comments.

6. Wells (Domestic, Municipal, Communal, Monitoring, Construction, Unused and Abandoned, etc.)
    - The risks to public health posed to groundwater by both dug and drilled wells can be significant where there are well construction inadequacies or wells that have not been properly plugged and sealed. Information on the location of wells should be collected and private landowners should be required to provide the necessary information.
    - A mechanism needs to be designed to determine the status and options for dealing with wells that pose an actual or potential threat to a drinking water source.
    - The siting and integrity of wells need to be a first priority in assessing and managing threats to drinking water.
    - An inventory of unused and abandoned wells is needed so that they can be correctly decommissioned.
    - The siting of new wells should be done carefully to draw on the best quality water sources.
    - In addition, private water supplies should be the subject of an information and outreach strategy, supported at the provincial level and focused on preventing local contamination of the supply.

7. Septic Systems and Underground Fuel Storage Tanks
    - Existing rules related to septic storage tanks, septic systems and underground fuel storage tanks must be enforced and, where needed, new approaches and tools should be developed and implemented. The ability for periodic re-inspections should be clarified to ensure a mechanism is available (e.g., expiry dates on certificates of approval).
    - At a minimum, the province should require that all septic systems be inspected at point of sale as a condition of sale of property and when application is made for development or redevelopment (including decommissioning). Septic tanks should also be pumped out on a regular basis (e.g., every five years). Note that this recommendation of the Advisory Committee goes further than Justice O'Connor who recommended only that septic systems be inspected at point of sale (See Appendix A: Justice O'Connor's Recommendation 9).

8. Landscape Restoration
    - Many threats and the risk they represent to drinking water sources can be managed on a site-specific basis through restoration of the landscape (e.g., riparian buffers consisting of natural vegetation, strategically-placed wetlands) for enhanced source protection.
    - An approach that seeks to reduce threats to drinking water sources by (re)designing the most essential of source area landscapes should be pursued, where appropriate.
    - Landscape management adjustments can, for example, be effective in dealing with surface water issues before contaminants reach groundwater recharge areas or drinking water intake pipes

The Advisory Committee recommends that:

43. The province establish the definitions of threats and their relative risks to water sources that will be inventoried in all watersheds. To this end, the province should immediately establish a working group of experts to agree on an Ontario-based threat assessment process within six months of the receipt of the Advisory Committee's report and present its findings to the province for approval. This working group must also develop the initial definition of "vulnerable area " and "sensitive water resource" to be used in all planning areas.

44. Any working definition of "vulnerable area" or "sensitive water resource" used in the initial planning stages and legislation be reviewed on an ongoing basis to make it appropriate for source water protection and consistent with definitions in other pieces of legislation and programs.

45. The approach to threat assessment, risk management and sustainable supply for both ground and surface water sources in Ontario be consistent with the considerations identified in the Advisory Committee's report in the sub-sections: **Threat Assessment and Risk Management Strategies,** (section **4) Risk Management**).

46. The risk analysis process must be premised on the best available science. While it is recognized that more qualitative classifications of threat, vulnerability and sensitivity will be necessary initially, the risk analysis process must evolve toward more accurate quantitative methodologies and technologies as our knowledge base grows and improves over time with advances in research.

Additional Standards for Surface Water

In general, surface waters are more susceptible to contamination than groundwater from contaminant sources such as:

- industrial and municipal wastewater;
- urban and rural non-point sources, such as storm water;
- other rural, non-point sources such as agricultural run-off;
- naturally occurring contamination, including that generated by wildlife and companion animals;
- contaminants deposited from airborne sources.

Source protection plans should be required to identify local contaminants of concern, the existing levels of those contaminants found within the source water, and the relative contributions from specific point and non-point sources.

In the opinion of the Advisory Committee, the most appropriate benchmarks related to surface water are those found in the Provincial Water Quality Objectives (PWQO). PWQOs are ambient water quality criteria. They represent a desirable level of water quality to be maintained in the surface waters of Ontario. PWQOs are set at a level of water quality which is protective of all forms of aquatic life. A number of other PWQO objectives are based on public health and aesthetic considerations. Source protection plans should be required to identify management strategies for:

- protecting the source water from degradation beyond the appropriate Provincial Water Quality Objectives (PWQO) for the specific identified contaminants;
- protecting pristine water sources from degradation where their quality is better than the PWQOs;
- where degradation already exists beyond the PWQO, strategies for remediation; and
- timelines for achievement of desired results.

At the provincial level, the Advisory Committee recommends that the province apply clear, consistent, and universally applicable criteria to establishing discharge limits for municipal wastewater discharges. Furthermore, the province should develop, in consultation with municipalities and conservation authorities, a range of tools that would assist in the identification, calculation, and, ultimately, management of non-point sources other than those addressed through the *Nutrient Management Act* (NMA) and, in vulnerable areas, those that are addressed through the NMA.

The Advisory Committee recommends that:

47. All Ontario surface water bodies should continue to be required to meet the Provincial Water Quality Objectives (PWQO) since meeting them consistently would be an important step towards meeting the goal of source protection planning. These standards should be not used as a substitute for more detailed and site-specific source protection strategies, nor should they be interpreted as allowing high quality water to be degraded to meet a minimum standard.

48. The PWQOs should be peer reviewed so that they meet the highest international standards. The PWQOs should be reviewed specifically from the perspective of source water protection and new PWQOs should be added as necessary.

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5) INFORMATION MANAGEMENT

Source protection planning is a complex activity, requiring significant data inputs and data analysis capability. Only with the right kind of data, will we know that our mutual actions on source protection are bringing about the desired outcomes.

In this section, the Advisory Committee looks at the roles, requirements and needs for monitoring and reporting, and at the recommended information management framework to support source protection plans. It acknowledges that some up-front investment will be required to support the first wave of source protection plan development. Of particular concern to the Advisory Committee is the lack of information related to First Nations' water resources. Nonetheless, this should be viewed as a strategic investment in creating effective monitoring, information management and data systems to support source protection over the long-term.

Monitoring and Information Management

The Advisory Committee believes Ontario needs to have an effective monitoring network and information management system. There is little doubt that successful implementation of source protection will depend on timely access to the best available data, information and models by provincial ministries and the planning participants.

The Advisory Committee has identified the most important capabilities that should be built into the monitoring and reporting program to support source protection planning. The preferred system would be able to:

- assess background quality and quantity;
- determine changing conditions;
- capture extreme conditions (e.g., floods, droughts);
- identify existing and emerging problems;
- recognize the value, features and function of wetlands, woodlands and riparian areas in protecting drinking water sources;
- provide information to support resource management decisions;
- provide for reporting networks at the provincial and local levels with robust system back-ups;
- provide a basis to develop water protection and management policies;
- evaluate the effectiveness of land and water management practices and programs;
- improve understanding of the natural and human-induced factors affecting water quality/quantity; and
- provide early indications of success and failures of source protection activities (e.g., through lead indicators).

A system with these capabilities would provide the data and information required for the development, implementation and maintenance of local source protection plans. It would also provide a scientific basis for source protection and a firm foundation for reporting on the 'health' of our source waters.

In order to maximize both efficiency and cost-effectiveness, the Advisory Committee recommends that the province build on current provincial information management, monitoring and reporting initiatives and programs such as:

- the Water Resources Information Project (WRIP);
- Land Information Ontario (LIO);
- the Provincial Groundwater Monitoring Network; and
- the Surface Water Quality and Quantity Monitoring Networks.

While there is a need to enhance Ontario's capacity to gather, manage and use information in support of source protection planning, the effective use of existing systems should be maximized and any overlap or inefficiencies minimized before any new investments in expensive information systems are made.

The Advisory Committee recommends that:

49. The province undertake an assessment of the capacity of current and planned monitoring networks to support the needs of source protection planning. Any additional investment in information systems must clearly enhance current capacity, rather than duplicate it.

Roles and Responsibilities Related to Information

Source protection planning will require the province, municipalities and conservation authorities to manage information on a co-operative basis and to ensure open access to consistent and reliable information. The province is the lead data management organization, recognizing that other stakeholders will play an important role in the collection of information and maintenance of local monitoring programs. Because the source planning process needs to be as transparent as possible, it will be very important to ensure public access to data and information at all levels of source protection planning.

The Advisory Committee recommends that:

50. The province is the lead data management organization, recognizing that other stakeholders will play an important role in the collection of information and maintenance of local monitoring programs.

51. The following activities, related to information, need to be carried out or co-ordinated at the provincial level:
    - centralized compilation, collection and improvement of data sets

(this includes the work being done by Land Information Ontario to develop mapping and georeferencing standards that will ensure source protection plans fit together);

- provision of provincial data to SPPCs to support the development of initial source protection plans;
- development of data standards with the involvement of stakeholders, including a mechanism to ensure that all participants are working with the same or compatible data;
- a central repository and conduit for provincial data access and sharing with planning participants, to complement the sharing of data and information amongst planning areas, conservation authorities and municipalities;
- provision of advice, training and expertise to planning participants;
- development of, and input into, the selection of specific modelling tools; and
- aggregation of source protection plans and reporting at a provincial level that ensures consistency of mapping.

52. Conservation authorities and municipalities would be responsible for managing and collecting information relevant to source protection that is not already being collected by the province or another body. Their roles would include:
    - co-ordination of the local compilation, collection and improvement of data sets;
    - sharing data and information with other planning areas, conservation authorities and municipalities;
    - integration of local data with provincial data sets;
    - aggregation and reporting of data and information into a central repository;
    - analysis of the integrated information sets to create source protection plan products;
    - development of appropriate specific models for watershed planning purposes; and
    - provision of local information support through the development of the source protection plan.

53. To the extent possible, data should be as available to all those involved, including the dissemination of data and information to the public (e.g., non-proprietary information).

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53. To the extent possible, data should be as available to all those involved, including the dissemination of data and information to the public (e.g., non-proprietary information).

Outcome Measures and Evaluation

Performance and monitoring measures will be used at the provincial and watershed levels to track our progress towards the desired outcome of source protection planning, which is:

> To ensure that Ontario's drinking water systems deliver water with a level of risk so negligible that a reasonable and informed person would feel safe drinking the water.
>
> (*Part Two Report of the Walkerton Inquiry*; p.5)

The primary purpose of source protection is the protection of human health. However, measuring human health impacts is even more complex than measuring impacts on water quantity and quality. While clearly recognizing their importance, the Advisory Committee is not proposing any specific human health outcomes or indicators at this time. Instead, it passes this challenge on to those who will take the framework forward and recommends that this task be incorporated into the research mandate (refer to Advisory Committee Recommendation 55).

Aside from human health impacts, source protection planning will also result in cost avoidance for water treatment, improved ecological integrity, and a safe environment for future generations. Some of these benefits can be measured. Outcomes that could be measured to ascertain the progress of source water contamination prevention efforts are described below.

Planning Process Indicators

Process outcomes at the provincial level will be needed, especially in the early stages of planning. These include:

- the number of completed source protection plans;
- the proportion of the province protected by approved watershed-based source protection plans, as measured geographically and by population;
- the number of municipalities that have well head protection plans;
- the availability of data to the public, academia and public interest groups;
- the level of public reporting and evidence that Ontarians are aware of the effort being made to protect water resources for present and future generations; and
- increased industry and public participation in water preservation and conservation activities.

Water Quality and Quantity Indicators

It is important to note that improved water quality and sustainable water quantity are long-term outcomes. By implementing source protection planning, we should be able to demonstrate that clean water is kept clean and degraded water is improving.

Indicators for the success of source protection planning will need to be tailored at the watershed level to focus on land use pressures present in the watershed (e.g., types of pollutants present) and the characteristics of the local ecosystem (e.g., cold water species depletion).

Progress at the watershed level will be measured by:

- Improving water quality through the protection of existing surface and groundwater from degradation, and the improvement and restoration of water quality where degraded;
- Assessing water quantity to enable us to ensure the availability of an adequate and affordable supply of water; and
- Protecting ecosystems and restoring altered systems to a naturally functioning condition.

Examples of indicators include:

- reduced occurrences of pathogens and viruses in water;
- better source water quality after wet weather events, as measured by turbidity, total coliform, E. coli (e.g., reduced number of beach closures);
- reduced levels of inorganic chemicals, nitrates, phosphorous, pesticides and fecal contaminants in surface waters, especially streams, and groundwater where applicable;
- better health of biota in surface waters, including wetlands, disclosing less stress and adverse impacts from contaminants;
- increased number and lengths (kilometers) of surface waters meeting all provincial water quality objectives set by the province;
- improvement in fish tissue concentration for key contaminants;
- change in multi-year average stream base flow volumes and groundwater levels;
- number of municipalities managing within water budget; and
- change in total hectarage or percentage of landscape comprised of wetlands, riparian zones and forested lands that perform a significant hydrological function within the headwater, recharge and discharge zones of a watershed or subwatershed.

Developing outcome and performance measures is an iterative process and it will likely require several rounds to find measures that provide adequate information, particularly in the case of long-term human health effects.

Selection of Monitoring Locations

The location of monitoring sites for the quality and quantity of water should recognize the benefits of various management strategies, such as vegetative buffers, wetlands, etc. (e.g., locations would be selected so that samples would be taken *after* the vegetated buffer strips have had the opportunity to capture and utilize excess nitrate in root-zone water from overland water flowing from fields to surface water bodies, not *before*).

The Advisory Committee recommends that:

54. The province working with stakeholders identify the lead indicators by which progress toward the achievement of desired outcomes can be assessed and measured at the provincial and local levels. These indicators should be developed with six months of the beginning of the planning process.

Research Related to Source Water Protection

While existing knowledge and methodologies may be limited in some respects, the Advisory Committee wants to make it clear that this should not limit the scope of source protection planning. Given its commitment to embedding the precautionary approach throughout its source protection framework, the Advisory Committee believes that it is critical to take action despite any gaps in science and information.

Because the scientific basis on which source protection planning is based is continually evolving, the Advisory Committee wants to emphasize that research will play an important role in its development. In this respect, the Committee assumes that Justice O'Connor's recommendations on drinking water research in his *Part Two Report of the Walkerton Inquiry* are understood to include source protection.

As part of its duty to provide direction to the government on source protection, the Advisory Committee recommends that drinking water research be adequately resourced and shared so that each component of the source-to-tap protection system is continually improved. Specifically, it asks the government to ensure that a sustainable level of funding for ongoing research into the sciences related to source water protection, and most particularly, those related to human health, is provided.

The Advisory Committee recommends that:

55. The government ensure that a sustainable level of funding for ongoing research into the sciences that support source protection and, in particular, those disciplines that increase our understanding of the impact on human health. Furthermore, that the government ensure that Justice O'Connor's recommendations on drinking-water research and those of the Advisory Committee are implemented in an integrated manner, ensuring timely dissemination of relevant research findings to those involved at all levels, from academia to those in charge of day-to-day activities.

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6) CONCLUSION

Water is fundamental to many aspects of life in Ontario – our health, our economy, our social and community life, our recreation and our natural heritage.

The Advisory Committee believes that the source protection planning framework can be an effective guide for making decisions on historical, existing and new land and water uses in ways that protect human health. Making parts of the framework mandatory by grounding it in legislation will give weight to many of these source protection priorities.

The Advisory Committee has provided advice on 21 of 22 recommendations made by Justice O'Connor related to source protection. The Advisory Committee believes that its advice goes some distance in realizing Justice O'Connor's vision for source water protection. However, it also recognizes that, in some cases, its recommendations will need to be fleshed out in more detail as the planning process moves forward.

The Advisory Committee considered Justice O'Connor's recommendation to establish and adequately resource a watershed management branch within the Ministry of the Environment (Justice O'Connor's Recommendation 70) to be outside the scope of the source protection framework. However, the Advisory Committee encourages the province to move quickly upon receipt of this report to establish the Watershed Management Branch.

With respect to agriculture (Justice O'Connor's Recommendations 11, 12, 13, 14, 15, 16), the Advisory Committee recommends that the Ministry of the Environment and the Ministry of Agriculture and Food continue to work closely on requirements under the *Nutrient Management Act* (NMA). Just as Justice O'Connor recognizes that the NMA supports the achievement of a number of source protection-related objectives, so does the Advisory Committee. Since the development of farm water protection plans depends on source water protection plans, the Advisory Committee emphasises that the development of a framework for farm water protection planning should follow closely behind the overall source protection framework and be consistent with it.

As noted at the beginning of this report, source water protection is just the first barrier in a multi-barrier system that ensures the delivery of safe clean drinking water to Ontarians. To be effective it needs to be part of an effective source-to-tap policy. Therefore, the Advisory Committee wishes to lend its support to Justice O'Connor's Recommendation 65:

> The provincial government should develop a comprehensive "source to tap" drinking water policy covering all elements of the provision of drinking water, from source protection to standards development, treatment, distribution, and emergency response.
>
> (*Part Two Report of the Walkerton Inquiry*, p.399)

The Advisory Committee is aware of the other new initiatives under way in Ontario that focus on drinking-water treatment and distribution systems, such as the *Safe Drinking Water Act* and the *Sustainable Water and Sewage Systems Act*. As stated earlier, the Advisory Committee also recognizes the contribution of the *Nutrient Management Act* to source protection objectives.

If Ontario is indeed to have a safe, reliable source-to-tap drinking water system, the province must ensure that all the separate parts come together and create an integrated whole. The Advisory Committee emphasizes that the fact that we are dealing with imperfect or incomplete data should not be used to delay the implementation of watershed-based source protection planning. Ontario must start with the best available information and, over time, move to more sophisticated and comprehensive information systems.

Ontario needs to protect its drinking water sources. The Advisory Committee believes its source protection planning framework is strong enough to meet the challenges ahead. It is forward-thinking. It puts in place the first barrier in a multi-barrier system that can protect human health from contaminants in drinking water. It protects human health while taking into account ecological and economic interests. It provides consistency, where needed, while allowing for flexibility at the local level. Acceptance by the government of the Advisory Committee's framework for source protection will have far-reaching and profound implications for generations to come.
The important thing is to begin source protection planning *now*. The Advisory Committee encourages the province to move forward on the recommendations contained in this report as soon as possible.

The purpose of this glossary is to provide clarification of some of the terms used in the report. These definitions are not intended as legal definitions. Some definitions have been taken from existing programs or provincial legislation, and references have been provided in such cases.

A

"Accountability" in this report generally means that those who make decisions about drinking water safety are accountable for the consequences of those decisions.

"Aquifer" is a saturated permeable geologic unit that can transmit significant quantities of water under ordinary hydraulic gradients. Aquifers can be a few hectares to thousands of square kilometres in size.

"Aquitard" is any geologic material or unit that has a limited ability to transmit water. While these units may be fully saturated, they do not yield water in usable volumes from a well. Aquitards form the confining layer above and below confined aquifers.

"Assimilative capacity" refers to the limit of a water body or geological material to transform or incorporate substances, such as contaminants, through physical, biological or chemical means, to the point that water quality does not degrade below a predetermined level.

B

"Best management practices" (BMPs) are management procedures or structural practices designed to reduce the quantity of pollutants (e.g., contaminants, nutrients, sediments, animal wastes) washed by rain, snowmelt, etc., from residential or farm lands into receiving waters, such as lakes, streams, rivers, and into groundwater (Ontario Ministry of Environment and Energy "Blue Book").

C

"Conservation Ontario" Conservation Ontario is a non-governmental organization that represents Ontario's 36 conservation authorities. The purpose of Conservation Ontario is to represent the common interests of Conservation Authorities at a provincial and federal level. Conservation Ontario is governed by a Council comprised of elected and appointed municipal officials from CA Boards of Directors and CA staff.

"Cumulative impacts" means the resulting measurable impact on either water quality or quantity due to multiple contaminant sources or activities and the interaction between them.

D

"Decommissioning abandoned wells" means plugging an abandoned well with concrete or other suitable material so as to preclude the vertical movement of water or gas in the well, between aquifers or between an aquifer and the ground surface according to the requirements of Ontario Regulation 903 under the *Ontario Water Resources Act*.

"Direct threat" means any activity that has the ability to immediately impact a water resource in terms of water quality or quantity.

F

"Fate of contaminants model" means a predictive conceptual, numerical or physical representation that accounts for how contaminants will migrate and change (e.g., degrade) within a natural hydrologic or hydrogeologic environment.

G

"Great Lakes" include the five Great Lakes: Superior, Michigan, Huron, Erie and Ontario. It refers to that portion of the Great Lakes that starts at the low water mark of each water body.

"Groundwater recharge" means the replenishment of subsurface water, (a) resulting from natural processes, such as the infiltration of rainfall and snowmelt and the seepage of surface water from lakes, streams and wetlands, and (b) resulting from human intervention, such as the use of stormwater management systems. (Ontario Regulation 140/02 under the *Oak Ridges Moraine Conservation Act*).

H

"Hydrogeological study" means a systematic investigation of the geological and groundwater characteristics (including the physical and chemical characteristics) of an area.

"Hydrological cycle" means the circulation of water from the atmosphere to the earth and back through precipitation, runoff, infiltration, groundwater flow and evapotranspiration, including the occurrence, circulation, distribution, and chemical and physical properties of water on the surface of the land, in the soil and underlying rocks, and in the atmosphere, and water's interaction with the environment, including its relation to living things (Ontario Regulation 140/02 under the *Oak Ridges Moraine Conservation Act).*

I

"Indirect threat" means any activity which has the ability to impact a water resource in terms of water quality or quantity through intermediate processes or steps.

"Inland waters" means, for the purposes of this report, all lakes (excluding the Great Lakes) rivers and groundwater. The definition also includes boundary waters (Quebec/Ottawa/St. Lawrence and Manitoba/Nelson) and connecting channels to the Great Lakes.

L

"Lag indicators" are measures of accomplishments or measures of what outcomes achieved.

"Lead indicators" are the performance indicators that drive toward outcomes, but are not outcomes in their own right. They are indicators that predict what outcomes will be achieved.

N

"Non-point source" is a pollution source originating over broad areas, such as areas of fertilizer and pesticide application and leaking sewer systems, rather than from discrete points.

P

"Permit to take water" means a permit which is issued under the authority of the *Ontario Water Resources Act* (section 34) for the taking or removal of water from an aquifer or surface water feature.

"Point source" is a stationary location or fixed facility from which pollutants are discharged; any single identifiable source of pollution (e.g., a pipe, ditch, ship, ore pit, factory smokestack).

"Pollutant loading" means the total quantity of a pollutant released to the environment from a single source or from multiple sources.

R

"Relative risk" means a qualitative expression of the risk associated with any activity based on a comparison of the likely risk associated with other activities.

"Risk" means the likelihood of the occurrence and the magnitude of the consequences of a adverse event; a measure of the probability of harm and the severity of impact caused by a hazard.

"Risk analysis" includes quantitative and qualitative evaluation of all relevant attributes of environmental hazards, risks, adverse effects, events and conditions that lead to or modify adverse effects, and populations or environments that influence or experience adverse effects.

"Risk Management" is the process of evaluating and selecting alternative regulatory and non-regulatory responses to risk. The selection process necessarily requires the consideration of legal, economic, and behavioural factors. (United States Navy, Naval Facilities Engineering Command)

S

"Sensitivity" in the context of source protection means the likelihood of an adverse effect resulting from the manner in which a water resource will react when exposed to any given threat. Water resources with a higher sensitivity are more likely to be adversely impacted than a water resource with a low sensitivity when exposed to any given threat.

T

"Threat" is any activity or material (hazard or stressor) that has the potential to negatively impact or otherwise interfere, either directly or indirectly, with the use of any water resource as a source for drinking water.

V

"Vulnerability" of a water source is considered to be an expression of the ease with which a threatening or hazardous material can gain access to that resource (through environmental pathways).

"Vulnerable area" means an area where a surface water body or aquifer is vulnerable to contaminants originating on the land's surface.

W

"Wetlands" are lands that are seasonally or permanently covered by shallow water, including lands where the water table is close to or at the surface. The presence of abundant water causes the formation of hydric soils and favours the dominance of either hydrophytic or water-tolerant plants. The five major types of wetlands are marshes, swamps, bogs, fens and shallow open waters.

W

"Water budget" reflects the relationship between input and output of water through a region. Water budgets provide clear and quantifiable information on water resources essential to effective decision-making around water use and allocation. Key functions of water balance/water budgets include:

- determining the availability and extent of water resources over time;
- determining the minimum requirement for water resource and ecosystem sustainability;
- determining the minimum requirement for protecting and maintaining a healthy water supply;
- ensuring requirements for competitive industry are identified and maintained;
- rationalizing the needs and related implications of multiple uses and competing uses; and
- assessing the impacts of proposed land use changes, climate change, and extreme events (e.g., drought, flood).

"Wellhead protection area" means the surface and subsurface area surrounding a water well or well field that supplies a public water system and through which contaminants are reasonably likely to move so as eventually to reach the water well or well field (Ontario Regulation 140/02 under the *Oak Ridges Moraine Conservation Act*).

"Well field" means a clustering of two or more groundwater production wells that supply water to communal distribution system(s). The wells must be on a single property or directly adjacent properties, and can be installed within a single or multi-aquifer system.

APPENDIX A

JUSTICE O'CONNOR'S RECOMMENDATIONS RELATED TO SOURCE PROTECTION: *PART TWO REPORT OF THE WALKERTON INQUIRY*
The Protection of Drinking Water Sources (Chapter 4)
Recommendation 1 Drinking water sources should be protected by developing watershed-based source protection plans. Source protection plans should be required for all watersheds in Ontario.
Recommendation 2 The Ministry of the Environment should ensure that draft source protection plans are prepared through an inclusive process of local consultation. Where appropriate, this process should be managed by conservation authorities.
Recommendation 3 Draft source protection plans should be reviewed by the Ministry of the Environment and subject to ministry approval.
Recommendation 4 Provincial government decisions that affect the quality of drinking water sources must be consistent with approved source protection plans.
Recommendation 5 Where the potential exists for a significant direct threat to drinking water sources, municipal official plans and decisions must be consistent with the applicable source protection plan. Otherwise, municipal official plans and decisions should have regard to the source protection plan. The plans should designate areas where consistency is required.
Recommendation 6 The provincial government should provide for limited rights of appeal to challenge source protection plans, and provincial and municipal decisions that are inconsistent with the plans.
Recommendation 7 The provincial government should ensure that sufficient funds are available to complete the planning and adoption of source protection plans.
Recommendation 8 Conservation authorities (or, in their absence, the Ministry of the Environment) should be responsible for implementing local initiatives to educate landowners, industry, and the public about the requirements and importance of drinking water source protection.
Recommendation 9 Septic systems should be inspected as a condition for the transfer of a deed.
Recommendation 10 The Ministry of the Environment should not issue Certificates of Approval for the spreading of waste materials unless they are compatible with the applicable source protection plan.

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The Ministry of the Environment should take the lead role in regulating the potential impacts of farm activities on drinking water sources. The Ministry of Agriculture, Food and Rural Affairs should provide technical support to the Ministry of the Environment and should continue to advise farmers about the protection of drinking water sources.

Recommendation 12
Where necessary, the Ministry of the Environment should establish minimum regulatory requirements for agricultural activities that generate impacts on drinking water sources.

Recommendation 13
All large or intensive farms, and all farms in areas designated as sensitive or high-risk by the applicable source protection plan, should be required to develop binding individual water protection plans consistent with the source protection plan.

Recommendation 14
Once a farm has in place an individual water protection plan that is consistent with the applicable source protection plan, municipalities should not have the authority to require that farm to meet a higher standard of protection of drinking water sources than that which is laid out in the farm=s water protection plan.

Recommendation 15
The Ministry of the Environment should work with the Ministry of Agriculture, Food and Rural Affairs, agricultural groups, conservation authorities, municipalities, and other interested groups to create a provincial framework for developing individual farm water protection plans.

Recommendation 16
The provincial government, through the Ministry of Agriculture, Food and Rural Affairs in collaboration with the Ministry of the Environment, should establish a system of cost-share incentives for water protection projects on farms.

Recommendation 17
The regulation of other industries by the provincial government and by municipalities must be consistent with provincially approved source protection plans.

Monitoring and Measurement (Chapter 8)

Recommendation 38
Sampling plans should provide for sampling under the conditions most challenging to the system, such as after heavy rainfalls or spring floods.

The Provincial Government Role in Overseeing Drinking Water Systems (Chapter 13)
Recommendation 65 The provincial government should develop a comprehensive source to tap drinking water policy covering all elements of the provision of drinking water, from source protection to standards development, treatment, distribution, and emergency response.
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Recommendation 70 The provincial government should create a Watershed Management Branch within the Ministry of the Environment to be responsible for oversight of watershed-based source protection plans, and, if implemented, watershed management plans.
First Nations (Chapter 15)
Recommendation 88 Ontario First Nations should be invited to join in the watershed planning process outlined in Chapter 4 of this report.

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APPENDIX B

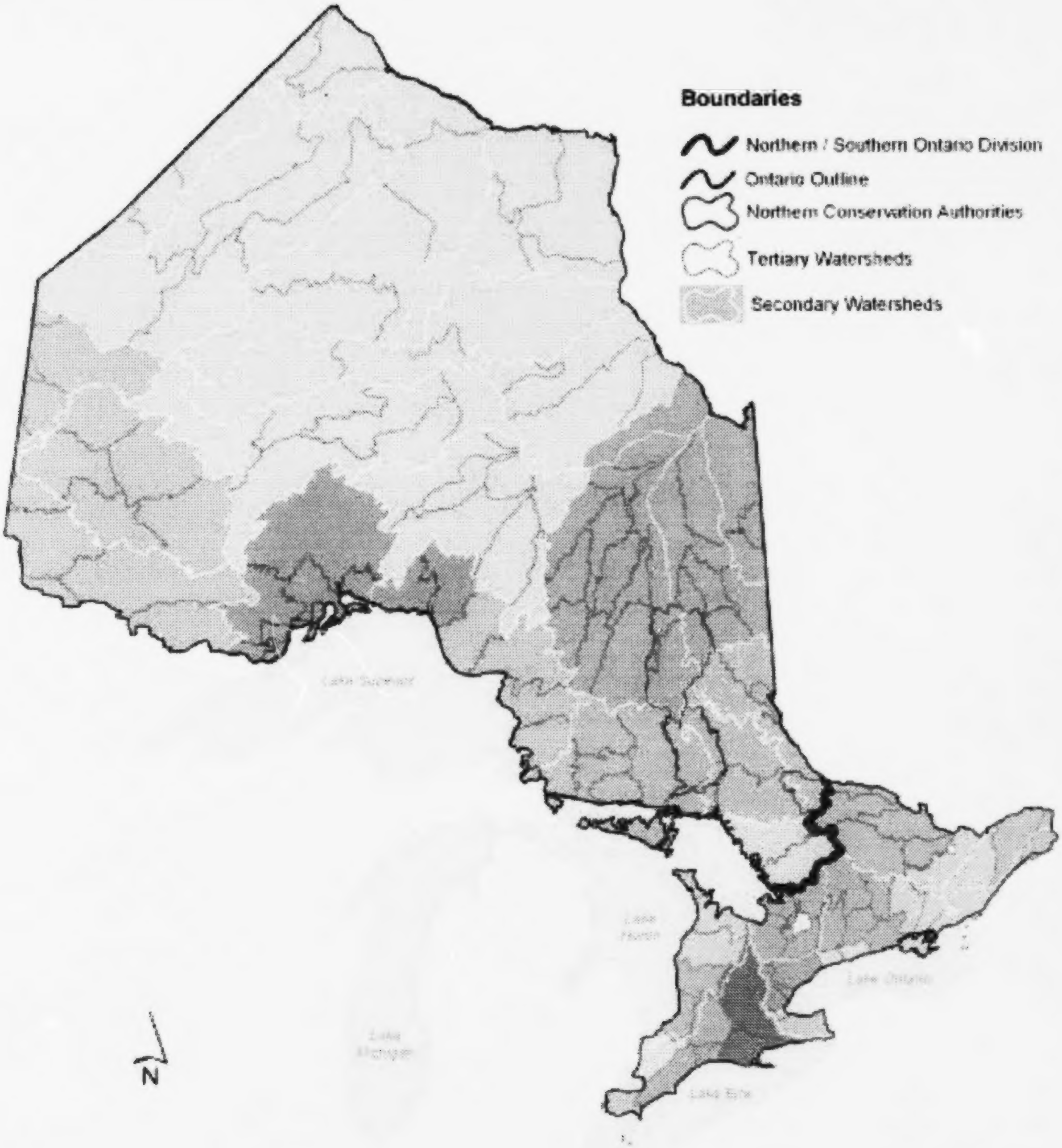
MEMBERS OF THE ADVISORY COMMITTEE ON WATERSHED-BASED SOURCE PROTECTION PLANNING

Organization	Member
Chair	Bill Calvert
University of Toronto	Carl Amrhein
Ducks Unlimited Canada	Jim Anderson
Ontario Federation of Agriculture	Ron Bonnett
Association of Municipalities of Ontario	Ken Boshcoff/Pat Vanini
Aggregate Producers Association of Ontario	Jackie Fraser
Association of Municipalities of Ontario	Mike Garrett
Conservation Ontario	Dick Hunter
Chiefs of Ontario	Derrick Kamanga
Grand River Conservation Authority	Peter Krause
Ontario Water Works Association	Tim Lotimer
Ontario Farm Animal Council	John Maaskant
Canadian Environmental Law Association	Theresa McClenaghan
Association of Municipalities of Ontario	David Oliphant
Upper Thames River Conservation Authority	Don Pearson
Urban Development Institute	Neil Rodgers
Ontario Medical Association	Albert Schumacher
Ontario Chamber of Commerce	Atul Sharma

Organization	Provincial Representatives (ex-officio)
Ministry of the Environment	Doug Barnes
SuperBuild	Paul Evans
Ministry of Health and Long-Term Care	Brian Gibson
Ministry of Municipal Affairs and Housing	Brad Graham
Ministry of Municipal Affairs and Housing	Edward Sajecki
Ministry of Natural Resources	Peter Wallace
Ministry of Agriculture and Food	Jim Wheeler

APPENDIX C

MAP OF POTENTIAL SOURCE PROTECTION PLANNING AREAS


Boundaries
Northern / Southern Ontario Division
Ontario Outline
Northern Conservation Authorities
Tertiary Watersheds
Secondary Watersheds
Lake Superior
Lake Huron
Lake Ontario
Lake Michigan
Lake Erie
N

APPENDIX D

SUMMARY OF RECOMMENDATIONS OF THE ADVISORY COMMITTEE

INTRODUCTION

RECOMMENDATION 1: The government require the watershed-based source protection framework described in the Advisory Committee's report and recommendations to be used in all watersheds in Ontario.

FRAMEWORK FUNDAMENTALS

Responsibility and Accountability

RECOMMENDATION 2: Consistent with Justice O'Connor, the provincial government, specifically, the Ministry of the Environment, has the ultimate accountability for ensuring source water protection, notwithstanding the shared responsibility of all governments and stakeholders to contribute to our collective goal of ensuring a sustainable supply of safe clean drinking water.

Goal of Source Protection Plans

RECOMMENDATION 3: The goal of watershed-based source protection planning in Ontario is to protect human health through the protection of current and future sources of drinking water, including inland lakes, rivers and groundwater, from potential contamination and depletion through locally-developed watershed-based source protection plans.

Scope of the Framework Regarding the Great Lakes

RECOMMENDATION 4: While the source protection planning framework focuses on inland waters, all communities and water users whose source of water is the Great Lakes share in the responsibility for the protection and enhancement of the waters of the Great Lakes, as well as inland water sources. Furthermore, the Ministry of the Environment should require any entity that discharges waste water, rural run-off or storm water to the Great Lakes to manage or improve the quality of its discharges to a standard that meets the objectives of source water protection.

RECOMMENDATION 5: As the province negotiates with its Great Lakes partners, it should recognize the benefits of source protection and work to have its principles incorporated into future agreements.

Principles Guiding Source Protection Planning

RECOMMENDATION 6: Decision-making that could have potential impacts on human health and affect water quality or quantity be guided by the following principles:

- **Sustainability:** Water is essential for our health and ecosystem viability and must be valued as finite. Source protection plans should consider historical, existing, new and future land uses when considering how to ensure clean sources of drinking water now and in the future.
- **Comprehensiveness:** All watershed-based source protection plans must take a precautionary approach that uses the best available science and is subject to continuous improvement as our knowledge increases. The plan must be defensible and have the flexibility to accommodate Ontario's diverse watersheds.
- **Shared Responsibility and Stewardship:** While the Ministry of the Environment has ultimate accountability for ensuring source water protection, responsibility for specific outcomes is shared among all water managers, users and land owners.
- **Public Participation and Transparency:** There must be open discussion and communication of the source protection planning process and its results, from development to implementation. Stakeholders and the public will have opportunities for meaningful input.
- **Cost Effectiveness and Fairness:** The costs and impacts on individuals, land owners, businesses, industries and governments must be clear, fair and economically sustainable. Source protection planning must access all information that is practical and reasonable and use technologies and risk management practices to maximize the protection of public health.
- **Continuous Improvement:** Source protection planning is built on a commitment to continuous improvement, including peer review, that requires ongoing support of all stakeholders to ensure successful implementation based on assessment, monitoring, evaluation and reporting, followed by appropriate modifications to the plan.

Legislative Basis for Source Protection Planning

RECOMMENDATION 7: A stand-alone piece of legislation for source water protection be developed that incorporates provisions related to source protection from other legislation so that the legislation will be as clear and comprehensive as possible.

RECOMMENDATION 8: Where risk to human health is the concern, source protection legislation should supersede other legislative provisions and other considerations, consistent with the hierarchy set out by Justice O'Connor (refer to Appendix A: Justice O'Connor Recommendations 4 and 5). This also that requires provincial decisions affecting water quality and quantity, such as permits to take water, the Oak Ridges Moraine Conservation Plan and certificates of approval, etc., to be consistent with source protection legislation in the same way.

RECOMMENDATION 9: Other legislation, such as the *Environmental Protection Act, Municipal Act, Planning Act, Nutrient Management Act, Drainage Act, the Brownfields Statute Law Amendment Act* and the *Mining Act*, etc., be amended where necessary to be consistent with the source protection legislation.

RECOMMENDATION 10: Source protection legislation and regulations should include, among other requirements:

- a schedule for completion of initial plans that reflects a phased approach that recognizes the capacity of participants and the existing level of risk (watersheds at a higher risk should be required to develop and implement plans more quickly; watersheds with high quality water should be protected from potential contamination; the province should consult with stakeholders when establishing the schedule);
- all planning areas must initiate the planning process within two years of the effective date of the legislation in accordance with the legislated schedule and each plan, once started, should generally be completed within three years (source protection plans must be in place across Ontario by the end of the fifth year);
- the power for the Minister of the Environment to identify the planning areas to which a specific source protection plan is to apply and to designate the organization with lead responsibility for co-ordinating plan development for the planning area;
- the roles and responsibilities of the key parties involved in source protection planning (see also 3) THE PLANNING PROCESS).
- the minimum content of source protection plans (refer also to Advisory Committee Recommendation 31);
- the process requirements for the source protection plan development, including local consultation, as well as clear public reporting requirements (these requirements would also include those related to the approval process); and
- grounds for appeal related to the content or process used in developing source water protection plans, the entity or body which

is responsible for hearing these appeals, associated timelines and other procedures and requirements (refer also to Advisory Committee Recommendations 39 and 40).

New Powers for Municipalities

RECOMMENDATION 11: The province work with municipalities and other stakeholders to identify the appropriate types and scope of new municipal powers that should be made available for the purposes of source water protection, including dealing with funding issues. Then, the province should take steps to ensure that the agreed-upon list of new municipal powers is provided to municipalities so that they may use them to better protect source water and implement watershed-based source protection plans (refer also to Advisory Committee Recommendations 33 and 34).

New Responsibilities for Conservation Authorities

RECOMMENDATION 12: Conservation authorities be the organization given responsibility for co-ordinating the development of watershed-based source protection plans wherever possible.

RECOMMENDATION 13: The resourcing of conservation authorities recognize their new role in source protection planning and provide for new sources of funding in specific instances related to source protection planning (refer also to Advisory Committee Recommendations 33 and 34).

RECOMMENDATION 14: The province requires all municipalities and local services boards to participate in source protection planning.

First Nations

RECOMMENDATION 15: Recognizing current agreements and relationships with conservation authorities, provincial ministries and other jurisdictions, First Nations (and their technical designates) and the Ministry of the Environment establish a working relationship with respect to source protection planning as soon as possible.

RECOMMENDATION 16: The province pursue a strategy with the federal government and First Nations that would support the ability of First Nations (and their technical designates) to be full participants in source water protection planning and implementation. This would include ensuring their involvement in the development of the plan, including participation on the source protection planning committee and in the consultation process, and in the implementation of watershed-based source protection planning through agreements.

Interim Risk Management

RECOMMENDATION 17: The province, municipalities and conservation authorities use their available powers to manage potential threats to human heath and protect sources of drinking water by taking action with respect to high-risk activities and land uses until source protection plans are approved and implemented.

RECOMMENDATION 18: Conservation Ontario and the province provide a model source protection plan, based on existing source protection plans, that will be used as a guide in the interim by those without source protection plans. This model would establish a common platform that would be informed by details particular to each area.

Financing Initial Source Plans

RECOMMENDATION 19: The province substantially funds development of all initial watershed-based source protection plans.

RECOMMENDATION 20: Contributions from sources in addition to the provincial government, consistent with Justice O'Connor's report, be negotiated to support ongoing source protection planning (refer also to Advisory Committee Recommendations 33 and 34).

THE PLANNING PROCESS

Planning Areas

RECOMMENDATION 21: For the purposes of developing source protection plans, there should be approximately 16 planning areas in southern Ontario and approximately 8 in Northern Ontario. This recognizes that the grouping of watersheds into planning areas may enable more effective and efficient sharing of resources.

Source Protection Planning Committee (SPPC)

RECOMMENDATION 22: Consistent with Justice O'Connor, the plan development process is co-ordinated by a conservation authority, or the Ministry of the Environment (or designate) in areas where there is no conservation authority. Where a conservation authority is in an area adjacent to large areas of Crown land, the conservation authority should play a co-ordinating role alongside the Ministry of the Environment.

RECOMMENDATION 23: The SPPC will act as an advisory committee to the board of directors of the conservation authority. It is the board(s) of directors that submits the recommended draft plan to the Ministry of the Environment for approval. A parallel process will be established for areas that do not have a conservation authority.

RECOMMENDATION 24: The chair of the SPPC will be appointed by the Minister based on a recommendation from the board(s) of directors of the conservation authorities. The chair may be a full-time position in some areas.

RECOMMENDATION 25: Membership on the SPPC be distributed as follows: one-third municipal representatives; one-third provincial, First Nations and federal representatives, and; one-third local public health and other stakeholders. At a maximum, SPPCs will be made up of 18 individuals plus the chair. Note, that each stakeholder or group of stakeholders would select its own representative(s) to the SPPC. In addition, the SPPC may establish working groups as necessary, providing another opportunity for direct involvement of others in the plan development process.

RECOMMENDATION 26: SPPCs must define in their terms of reference what constitutes sufficient municipal support for the draft source protection plan to be recommended for approval to the Ministry of the Environment. This must be agreed to by the board of directors of the conservation authority (or authorities) and forwarded for approval by the MOE as one of the first steps in the plan development process.

RECOMMENDATION 27: Each planning area will, as part of their responsibilities, constitute an expert panel made up of individuals that would, at key milestones, assess the appropriateness and validity of the approach, science and operational / management practices, and its advice will be used to inform the planning process.

Technical Expertise

RECOMMENDATION 28: Planning areas must have access to the necessary technical expertise to support the development, implementation and ongoing enhancement of source protection.

Planning Area Consultation Process

RECOMMENDATION 29: The minimum requirements for a transparent local consultation process in a planning area will include having:

- meetings of the Source Protection Planning Committee that are advertised and open to public attendance;
- draft plans and proposals published widely;
- adequate time and information to ensure a range of views are fully canvassed and considered;
- invitations for public comment in writing;
- documentation of responses to public input, as appropriate; and
- involvement of other affected local parties, including municipalities, local services boards, elected officials, land users, water system operators, First Nations, off-reserve Aboriginal communities, local public health officials, and the public, in its important role of drinking water consumer.

RECOMMENDATION 30: All Source Protection Planning Committees define in their terms of reference a plan for local consultation that meets minimum requirements and this must be agreed to by the board(s) of directors of the conservation authority early in the planning process.

Content of the Initial Source Protection Plan

RECOMMENDATION 31: The components to be included in a source protection plan integrating Justice O'Connor's list of "key ingredients" are as follows:

- objectives and targets of the Source Protection Plan.
- technical information including:
  - a water budget, including future water needs;
  - a fate of contaminants model, including assessment of future pollutant loadings and cumulative impacts;
  - maps, based on provincially prescribed definitions and methodology, that identify areas of high, medium and low vulnerability areas and sensitive water resources (refer to 4) Risk Management section);
  - a baseline map to establish the state of the watershed at the outset of the planning process and an overlay map of existing and potential land uses;
  - identification and delineation of natural features such as various types of wetlands, woodlands and riparian zones that contribute to the protection of drinking water sources;
  - identification of areas where a significant direct threat exists to the safety of the drinking water supply;
  - maximum contaminant loads to meet water quality objectives;

    - inventory of major point and non-point sources of contaminants and high-risk land uses; and
    - maps of all significant water takings and areas experiencing stress due to water takings.
- identification of where source protection issues exist, such as:
    - where a significant direct threat exists to the safety of the drinking water source;
    - potential water allocation problems;
    - need for special operational limits to water taking;
    - areas where the plan might need to influence or govern municipal land use and zoning;
    - areas where farm water protection plans are needed;
    - areas where biosolids and septage spreading need special consideration;
    - contaminated site issues that need priority action;
    - priority areas for identifying and properly decommissioning unused or abandoned wells;
    - priority areas for ending the misuse of abandoned pits and quarries or for their rehabilitation; and
    - identification of knowledge gaps and research needs for the watershed.
- an implementation plan* to manage the identified source protection issues, including roles and responsibilities, accountability, process, schedule and outputs.
- a monitoring and reporting plan*, including roles and responsibilities, accountability, process, schedule and outputs.
- a description of how the plan will be reviewed and updated, including roles and responsibilities, accountability, process, schedule and outputs.
- a description of outstanding or unresolved issues and how they will be dealt with* (these may be addressed through additional data collection, more detailed study and approved analytical tools).
  These may be supplemented by more detailed technical or other support guidelines to be developed by the province.

Approval Process for Source Protection Plan

RECOMMENDATION 32: The province define in legislation the criteria and process through which it will review and approve source protection plans based on the recommendations of the Advisory Committee and the results of the expert working group (refer also to Advisory Committee Recommendation 31 regarding the content of source protection plans).

Toward Implementation

RECOMMENDATION 33: Consultation on implementation and ongoing planning, including how to pay for them, be undertaken with different stakeholder groups immediately following receipt of this source protection planning framework. This consultation should start from the list of potential roles and responsibilities presented by the Advisory Committee in its report.

RECOMMENDATION 34: The model for the sharing of costs to align funding mechanisms with the appropriate responsible body should be negotiated with stakeholders while the initial source protection plans are being developed. Furthermore, all those in a planning area, particularly those who impact sources of drinking water and those who benefit from it, should contribute, to some degree, to the costs of source protection.

RECOMMENDATION 35: Incentive programs and payments for environmental benefits should be considered, especially in sensitive areas and well capture zones, as one way to encourage implementation of source protection measures and provide for long-term sustainability.

Review and Updating of Source Protection Plans

RECOMMENDATION 36: Groups involved in initial plan development and any newly identified participants should be convened periodically to review and revise the plan as necessary.

RECOMMENDATION 37: Proposed roles for those responsible for keeping plans up-to-date are as follows:

- Conservation Authorities will be responsible for:
    - keeping the source protection plan up-to-date and for keeping other partners and interest groups informed of any changes;
    - revising the local consultation process and work plan, if required, to fill in the information gaps in the source protection plan on an ongoing basis; and
    - issuing implementation status reports.
- Municipalities will be responsible for:
    - participating in source protection planning as a member of the conservation authority;
    - identifying new issues related to source protection and bringing them to the attention of the conservation authority; and
    - issuing implementation status reports.
- First Nations will be responsible for:
    - working with the conservation authority on source protection planning;

    - identifying new issues related to source protection and bringing them to the attention of the conservation authority; and
    - issuing implementation status reports.
- The Province will be responsible for:
    - defining the updating process, including public consultation, by working with affected groups (e.g., to establish the formal source protection planning cycle)
    - mandating when a new or updated plan is required;
    - reviewing and updating standards; and
    - issuing implementation status reports.

Reporting Roles

RECOMMENDATION 38: Consistent with Justice O'Connor, the government must report publicly on the status and progress of source water protection. Public reporting must be required from the Ministry of the Environment and each lead organization on watershed-based source protection plans and planning activities.

Appeals

RECOMMENDATION 39: Consistent with Justice O'Connor, appeals should provide for limited rights of appeal to challenge source protection plans and decisions of provincial and municipal governments that are inconsistent with those plans. These appeals may be heard by the Environmental Review Tribunal (ERT) or another appropriately designated appeals body.

RECOMMENDATION 40: Amendments to existing appeal processes (e.g., under the *Planning Act*, the *Ontario Water Resources Act*) be developed, where necessary, to provide appropriate grounds of appeal related to source protection planning. The details of appeal processes related to source protection must be developed as part of implementation planning.

Public Consultation and Education

RECOMMENDATION 41: The province must undertake broader public consultation on the recommendations made in the Advisory Committee's report to ensure that all stakeholders and Ontarians have an opportunity to contribute to the development of the source protection planning framework prior to legislation being introduced

RECOMMENDATION 42: The province, conservation authorities, municipalities and other stakeholders ensure that public education and dissemination of information is undertaken to ensure that Ontarians fully embrace the importance of protecting our drinking water sources.

RISK MANAGEMENT

Risk Management Strategies

RECOMMENDATION 43: The province establish the definitions of threats and their relative risks to water sources that will be inventoried in all watersheds. To this end, the province should immediately establish a working group of experts to agree on an Ontario-based threat assessment process within six months of the receipt of the Advisory Committee's report and present its findings to the province for approval. This working group must also develop the initial definition of "vulnerable area" and "sensitive water resource" to be used in all planning areas.

RECOMMENDATION 44: Any working definition of "vulnerable area" or "sensitive water resource" used in the initial planning stages and legislation be reviewed on an ongoing basis to make it appropriate for source water protection and consistent with definitions in other pieces of legislation and programs.

RECOMMENDATION 45: The approach to threat assessment, risk management and sustainable supply for both ground and surface water sources in Ontario be consistent with the considerations identified in the Advisory Committee's report in the sub-sections: **Threat Assessment** and **Risk Management Strategies** (section **4) Risk Management**).

RECOMMENDATION 46: The risk analysis process must be premised on the best available science. While it is recognized that more qualitative classifications of threat, vulnerability and sensitivity will be necessary initially, the risk analysis process must evolve toward more accurate quantitative methodologies and technologies as our knowledge base grows and improves over time with advances in research.

Additional Standards for Surface Water

RECOMMENDATION 47: All Ontario surface water bodies should continue to be required to meet the Provincial Water Quality Objectives (PWQO) since meeting them consistently would be an important step towards meeting the goal of source protection planning. These standards should be not used as a substitute for more detailed and site-specific source protection strategies, nor should they be interpreted as allowing high quality water to be degraded to meet a minimum standard.

RECOMMENDATION 48: The PWQOs should be peer reviewed so that they meet the highest international standards. The PWQOs should be reviewed specifically from the perspective of source water protection and new PWQOs should be added as necessary.

INFORMATION MANAGEMENT

Monitoring and Information Management

RECOMMENDATION 49: The province undertake an assessment of the capacity of current and planned monitoring networks to support the needs of source protection planning. Any additional investment in information systems must clearly enhance current capacity, rather than duplicate it.

Roles and Responsibilities Related to Information

RECOMMENDATION 50: The province is the lead data management organization, recognizing that other stakeholders will play an important role in the collection of information and maintenance of local monitoring programs.

RECOMMENDATION 51: The following activities, related to information, need to be carried out or co-ordinated at the provincial level:

- centralized compilation, collection and improvement of data sets. (this includes the work being done by Land Information Ontario to develop mapping and georeferencing standards that will ensure source protection plans fit together);
- provision of provincial data to SPPCs to support the development of initial source protection plans;
- development of data standards with the involvement of stakeholders, including a mechanism to ensure that all participants are working with the same or compatible data;
- a central repository and conduit for provincial data access and sharing with planning participants, to complement the sharing of data and information amongst planning areas, conservation authorities and municipalities;
- provision of advice, training and expertise to planning participants;
- development of, and input into, the selection of specific modelling tools; and
- aggregation of source protection plans and reporting at a provincial level that ensures consistency of mapping.

RECOMMENDATION 52: Conservation authorities and municipalities would be responsible for managing and collecting information relevant to source protection that is not already being collected by the province or another body. Their roles would include:

- co-ordination of the local compilation, collection and improvement of data sets;

- sharing data and information with other planning areas, conservation authorities and municipalities;
- integration of local data with provincial data sets;
- aggregation and reporting of data and information into a central repository;
- analysis of the integrated information sets to create source protection plan products;
- development of appropriate specific models for watershed planning purposes; and
- provision of local information support through the development of the source protection plan.

RECOMMENDATION 53: To the extent possible, data should be as available to all those involved, including the dissemination of data and information to the public (e.g., non-proprietary information).

Outcome Measures and Evaluation

RECOMMENDATION 54: The province working with stakeholders identify the lead indicators by which progress toward the achievement of desired outcomes can be assessed and measured at the provincial and local levels. These indicators should be developed with six months of the beginning of the planning process.

Research Related to Source Water Protection

RECOMMENDATION 55: The government ensure that a sustainable level of funding for ongoing research into the sciences that support source protection and, in particular, those disciplines that increase our understanding of the impact on human health. Furthermore, that the government ensure that Justice O'Connor's recommendations on drinking-water research and those of the Advisory Committee are implemented in an integrated manner, ensuring timely dissemination of relevant research findings to those involved at all levels, from academia to those in charge of day-to-day activities.